noranda

ANNUAL REPORT 1979

noranda

HEAD OFFICE

P.O. Box 45, Commerce Court West, Toronto, Canada M5L 1B6

HIGHLIGHTS ($ millions)

	1979	1978	1977	1976	1975
Revenue	2,484.7	1,691.1	1,395.8	1,234.8	1,159.3
Income Taxes	227.0	90.5	22.7	25.1	41.5
Share of after-tax profits in Associates	70.1	49.3	33.5	26.9	34.6
Earnings	394.5	135.2	71.8	46.7	50.5
Working Capital	687.4	281.6	167.3	197.5	188.0
Investments and advances	406.1	410.0	387.8	361.9	372.2
Long-term debt	602.5	604.1	588.9	603.4	533.1

Annual Meeting

April 25, 1980, 2:30 p.m.
Royal York Hotel,
Toronto, Canada

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OWNERSHIP

	Registered Shareholders	Ownership
Canada	27,400	94%
U.S.A.	2,500	5%
Other	400	1%

An English or French edition of this Report may be obtained from the head office of the Company.

On peut se procurer la version française ou anglaise de ce rapport en en faisant la demande au siege social de la compagnie, B.P. 45, Commerce Court West, Toronto, Ontario M5L 1B6

COVER

The 'Hard Hat' — although the cover reproduction is photographic artistry, the 'Hard Hat' is the most visible piece of safety clothing used by the employees in the resource industry where good safety practices are constantly in use, and taught in training programs.

REFERENCE

In this report unless indicated otherwise, — divisions and/or companies are wholly owned; production is for the calendar year 1979; tons mean short tons of 2,000 lbs.; mineral inventories are as at Dec. 31/79; financial data is in Canadian dollars and divisional earnings are earnings after taxes but before borrowing costs.

OECD GUIDELINES

In recent years Noranda's operations have extended into many countries outside Canada. It is, therefore, appropriate to record Noranda's support for the declaration by the governments of the Organization for Economic Co-operation and Development member countries on guidelines for multinational enterprises and the application of these guidelines in the conduct of Noranda's operations and business abroad.

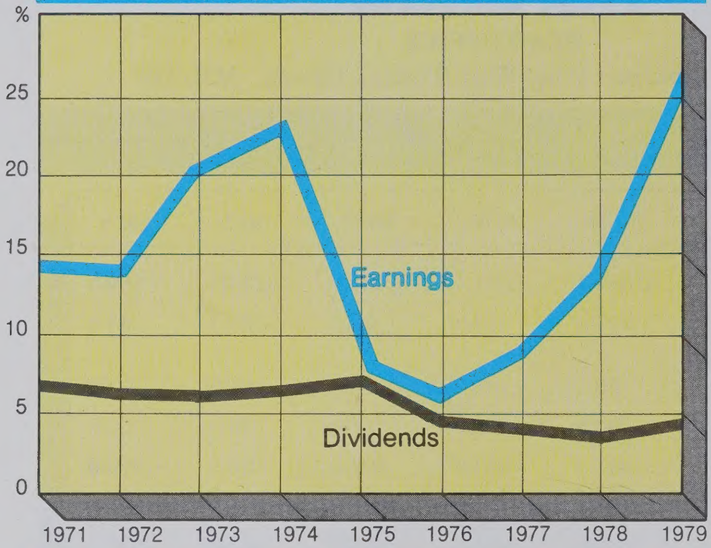
TRANSFER AGENT AND REGISTRAR

Canada Permanent Trust Company,
Toronto, Vancouver, Calgary, Saskatoon, Winnipeg, Montreal, Saint John, N.B., Halifax, Charlottetown and St. John's, Nfld.

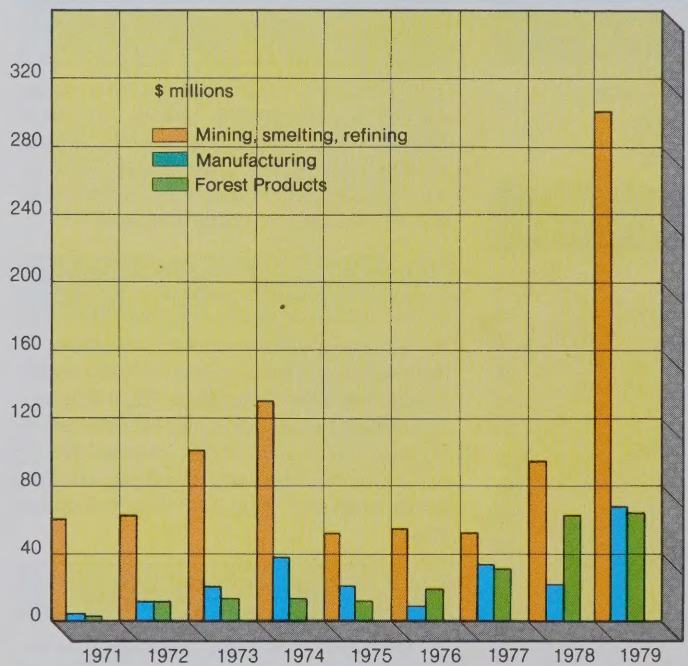
The Chase Manhattan Bank, New York, N.Y.

This report, excepting the cover, is printed on Fraser BP Opaque, English Finish paper.

EARNINGS AND DIVIDENDS
(as a percentage of shareholders' equity)



EARNINGS BY DIVISION



EMPLOYMENT

	1979			1978
	Noranda & Subs.	Assoc.	Totals	Totals
Canada				
Mining & Metallurgical	12,000	3,800	15,800	14,200
Manufacturing	5,000	150	5,150	5,000
Forest Products	3,000	12,000	15,000	12,700
	20,000	15,950	35,950	31,900
International				
Mining & Metallurgical	300	6,700	7,000	
Manufacturing	2,200	7,700	9,900	
Forest Products	1,200	1,300	2,500	
	3,700	15,700	19,400	19,400
Totals	23,700	31,650	55,350	51,300

DIRECTORS

James C. Dudley, President, Dudley & Wilkinson Inc., New York — Elected 1970

Louis Hébert, Company Director Montreal — Elected 1968

***William James,** Executive Vice-President, Noranda Mines, Toronto — Elected 1968

***A. J. Little,** Company director, Toronto — Elected 1974

L G. Lumbers, Chairman, Noranda Manufacturing, Toronto — Elected 1962

Thomas H. McClelland, Chairman, Placer Development Ltd., Vancouver — Elected 1975

W. Darcy McKeough, President, Union Gas Ltd., Chatham — Elected 1979

D. E. Mitchell, President and chief Executive Officer, Alberta Energy Company Ltd., Calgary — Elected 1973

***André Monast,** Partner in the legal firm of Létourneau & Stein, Quebec — Elected 1966

***Alfred Powis,** Chairman and President, Noranda Mines, Toronto — Elected 1964

***W. P. Wilder,** President and Chief Executive Officer, The Consumers' Gas Company, Toronto — Elected 1966

***Adam H. Zimmerman,** Executive Vice-President, Noranda Mines, Toronto — Elected 1974

*Member of the Executive Committee

OFFICERS

Alfred Powis, Chairman and President

William James, Executive Vice-President

Adam H. Zimmerman, Executive Vice-President

J. A. Hall, Senior Vice-President — Mines

D. E. G. Schmitt, Senior Vice-President — Mines

R. C. Ashenhurst, Secretary

A. Balogh, Vice-President — Metallurgy

E. K. Cork, Vice-President — Treasurer

D. H. Ford, Vice-President — Comptroller

K. C. Hendrick, Vice-President — Sales

J. O. Hinds, Executive Assistant to the President

B. H. Morrison, Vice-President — Metallurgy

R. L. Pepall, Consulting Counsel

R. P. Riggin, Vice-President — Corporate Relations

B. H. Grose, Assistant Secretary

W. J. Barbour, Assistant Treasurer

B. C. Bone, Assistant Treasurer

HONORARY DIRECTORS

J. R. Bradfield, Honorary Chairman

F. M. Connell	**A. O. Dufresne**
R. V. Porritt	**W. S. Row**
J. D. Simpson	**L. H. Timmins**

Directors' Report

EARNINGS AND DIVIDENDS

In what turned out to be a very eventful year, earnings of $395 million in 1979 were much better than expected a year ago, and for the first time since 1974 provided a good return on net assets. Earnings per share from the various divisions were as follows:

EARNINGS PER SHARE FROM:	1979	1978	AVERAGE 1975-79
Mining and Metallurgy	$3.65	$1.33	$1.46
Manufacturing	.81	.32	.40
Forest Products	.76	.87	.49
	$5.22	$2.52	$2.35
Less: cost of borrowing	.52	.61	.55
	$4.70	$1.91	$1.80
Return on net assets	17.2%	9.8%	9.6%

Dividends increased during each of the four quarters, and for the year totalled 85¢ per share compared with 43¢ in 1978.

As in 1978, the reduced value of the Canadian dollar had the effect of maintaining Noranda's international competitiveness. In present circumstances, each one cent change in the value of the Canadian dollar in relation to U.S. currency changes Noranda's annual earnings after taxes by some $10 million. However, with the average value of the Canadian dollar in 1979 being 85¢ U.S. compared with 87¢ the previous year, currency values had a beneficial but not decisive impact on the improvement in earnings.

The main reason for the improved results was that the expected U.S. recession had little impact on the markets for Noranda group products except in isolated instances. Demand was reasonably strong, and prices of many products rose toward the levels needed to justify investment in new capacity. In particular, there was considerable improvement in the prices for copper, zinc and pulp and, towards the end of the year, a spectacular increase in the prices for precious metals.

Mining and metallurgical earnings increased substantially as the result of the better demand and prices, together with some profit contribution from new operations. Partly offsetting factors were the strike at Mines Gaspé, which lasted through most of the first half of the year, and substantially increased exploration expenditures.

The comparison of manufacturing earnings with those in 1978 is distorted by abnormal expenses of 14¢ per share due to the involuntary shutdown of the aluminum reduction plant in that year. Even if this item is ignored, however, there was a gratifying improvement in results, as the reduced value of the Canadian dollar began to make its impact on the international competitiveness of domestic operations.

Forest products earnings increased over those of 1978, although the contribution to earnings per share was reduced due to the larger number of shares outstanding. In addition, the comparison with 1978 is distorted by a profit of 15¢ per share on the sale of two sawmills in that year. Pulp and paper markets remained strong throughout the year, while lumber markets did not weaken until the fourth quarter.

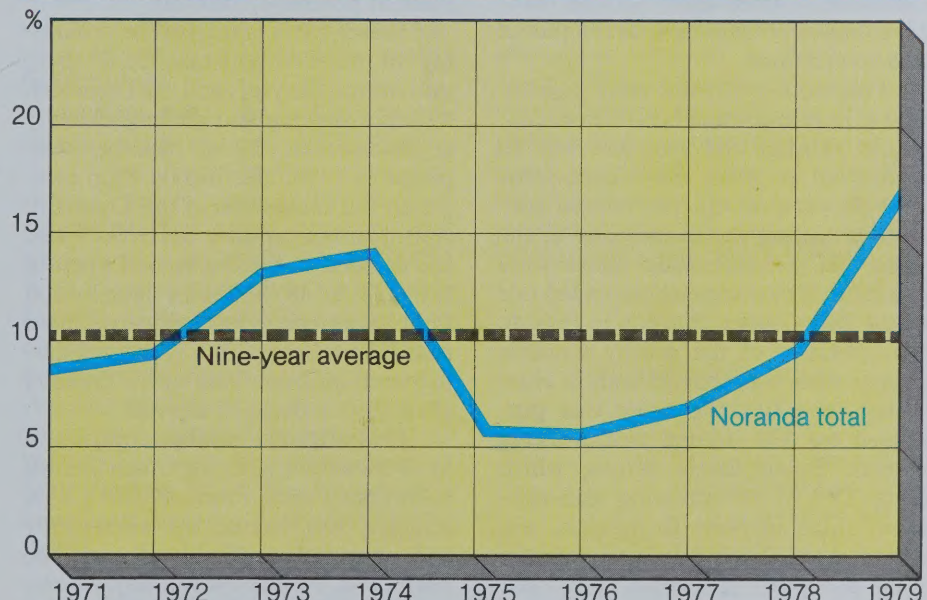
The geographic breakdown of operating earnings in 1978 and 1979, before exploration and common costs, was as follows:

	1979	1978
Maritime provinces	14%	12%
Quebec	34	31
Ontario	14	10
Western provinces	24	29
Total Canada	86	82
Foreign	14	18
Total	100%	100%

FINANCIAL POSITION

The shares were split three for one in August. Previously 13.3 million shares on the split basis (11.4 million net after eliminating Noranda's pro rata interest in shares issued to affiliates) were issued in connection with the mergers with Mattagami Lake Mines and Orchan. In addition 14 million treas-

RETURN ON NET ASSETS



ury shares (7.2 million net after eliminating Noranda's pro rata interest in affiliates) were sold for cash in mid-November. The share issues, together with improved cash flow from operations, went a long way towards curing a previously-extended financial position.

The improved finances allowed Noranda and its subsidiaries to undertake a number of major projects and acquisitions. It was also necessary during 1979 to reinstate some needed expenditures for the maintenance of existing operations which had been deferred in the strained financial circumstances of the previous four years. As a result, capital spending (including deferred development) was at a record level of $319 million compared with only $124 million the previous year. In addition, the increased volume of business together with higher prices significantly inflated operating working capital requirements.

As a result, while net working capital increased by $406 million, short term debt also increased. However, the enlarged equity base and higher net working capital should permit the company to carry this debt load with considerably less strain.

MAJOR DEVELOPMENTS

With improved earnings and financial condition, it once again became feasible to consider major new development and acquisitions.

Programs to expand mine production at Brunswick and Bell Copper continued through the year and will be completed in 1980. The Chadbourne gold property in Quebec started production during the second half of the year, and two operating mines were acquired. The previously intended sale of the Bell Copper Division in B.C. to the operators of the nearby Granisle copper mine was aborted and, in November, the Granisle mine was purchased for $32 million plus working capital. Heath Steele Mines, which owns 75% of an operating lead-zinc-silver mine in New Brunswick, was acquired in October in exchange for some phosphate properties in Florida.

Earlier in the year, the Lakeshore copper mine in Arizona, which had suspended production, was purchased and a decision has been made to place the oxide portion of the orebody back in production in late 1980. Investigations into resuming production of the sulphide ore are continuing. A number of other new mining projects are also at various stages of development – the Gallen, New Insco and Phelps-Dodge base metal properties in Quebec, the Lyon Lake copper-zinc property in Ontario, the Camlaren gold property in the Northwest Territories, the Goldstream copper property in British Columbia, the Blackbird copper-cobalt property in Idaho, the Park City lead-zinc-silver property in Utah, the Hopewell phosphate property in Florida, the Gray Eagle gold property in California, the Koongarra uranium property in Australia, and the Andacollo project in Chile. In addition, Placer Development has two significant silver-base metal projects under development, one in British Columbia and one in Mexico.

On November 1, deliveries of natural gas from the Elmworth-Wapiti field began on a limited basis with substantial increases in production expected starting November 1, 1980. Aggregate expenditures on the Canadian Hunter program in 1979 were $178 million, of which Noranda's share was $49 million. Noranda's share of such expenditures is expected to increase to over $100 million in 1980.

In manufacturing, an aluminum rolling mill was acquired at Huntingdon, Tennessee, and a wire and cable plant at Belleville, Ontario.

Fraser Inc. completed the rebuilding of its Edmundston, N.B. pulp mill during the year, and the expansion of paper-making and coating capacity at Madawaska, Maine will be completed in 1980. Northwood Pulp completed the conversion of the Chatham, N.B. plant to produce waferboard and has decided to build a second plant in the U.S.A. In addition, Northwood Pulp has agreed to buy a plywood plant near Prince George, B.C., and has started work on a doubling of the capacity of its Prince George pulp mill.

The pulp and lumber complex at St. Felicien, Quebec in which British Columbia Forest Products has a 45% interest, was started up successfully and operated profitably during the year. A 42.7% interest was acquired by BCFP in Finlay Forest Industries, which has operations near Mackenzie, B.C. BCFP has also decided to add a third newsprint machine and a thermo-mechanical pulp facility to its Crofton, B.C. mill, and has been awarded the rights to develop a forest products complex in Alberta.

In the aggregate, the various major projects referred to (excluding Canadian Hunter) involve gross expenditures of $2.7 billion, of which $1.7 billion will be spent subsequent to 1979. Of these future expenditures, however, Noranda's direct share will be only $230 million due to partnership and financing arrangements and the fact that many of the projects are being undertaken by affiliates. Nevertheless, capital spending will increase in 1980 as the result of these projects and the Canadian Hunter and other ongoing programs.

Following the year end, an offer was made to acquire all the outstanding shares of Maclaren Power & Paper Company for either $40 per share or eleven Noranda shares for six Maclaren. Maclaren has approximately 5.8 million shares outstanding. As at February 19, 1980, 5,709,611 (97.9%) of Maclaren's shares had been so acquired for 10,427,773 Noranda shares, and it is expected that the balance will be acquired by the end of the first quarter. With its main plants on the Ottawa River in Quebec, Maclaren produces newsprint, pulp, lumber and hydro-electric power.

GENERAL BUSINESS ENVIRONMENT

In terms of exploration and development by the Canadian mining industry, the 1970's can be characterized as a lost decade. The drastic and chaotic changes in mining taxation that resulted from so-called tax reform and the subsequent federal-provincial warfare over resource revenues largely destroyed the incentive to explore for and develop new ore deposits. The post-1974 recession, the worst since the 1930's, combined with high taxes and the debilitating impact of inflation, seriously weakened the industry's financial condition and eroded its ability to undertake new projects even if the incentive to do so had existed. As a result, the strong momentum built up by the industry during the 1950's and 1960's was halted.

Some progress has been made recently towards restoring a more rational system of mining taxation in Canada. In addition, improved earnings over the past year have strengthened the industry's financial position and its ability to raise outside capital. As a

result, the industry can regain some of its lost momentum in the 1980's if the tax regime continues to improve and other government policies remain reasonably stable. Due to inadequate exploration in the 1970's, this momentum can only build slowly but, as it does, the implications for Canada's employment levels and balance of payments will be very favourable.

A serious problem that has not been solved is inflation, which continues to impair the financial capacity of Canadian industry in spite of apparently buoyant earnings. Inflation increases working capital requirements out of all proportion to the real volume of business being transacted, and has raised the investment needed simply to maintain capacity and efficiency to a level substantially in excess of depreciation provisions. Obviously, the capital so absorbed is not available to improve financial strength or undertake new projects. The dimensions of this problem, as well as the adverse social consequences of inflation, now seem to be recognized by governments and some of the needed remedial policies have been adopted. However, these policies must be reinforced and followed with patience and determination if the rate of inflation is to be reduced.

William S. Row, retiring director, Alfred Powis and Darcy McKeough, director elect, at the Annual General Meeting, April 27, 1979.

OUTLOOK

In last year's annual report, it was stated that a further improvement in Noranda's earnings would be possible in 1979 if product prices and currency values remained at the levels then prevailing. However, this was qualified with the statement that, with most forecasters expecting a U.S. recession, any optimism about 1979 should be tempered with caution. In the event, as noted earlier, to the extent that a U.S. recession did develop it had little impact on the markets for most of Noranda's products, and earnings were very much better than expected.

Last year's forecast could well be repeated for 1980. If current levels of demand, prices and currency values are sustained throughout the year, a further substantial improvement in earnings could be realized. In addition, there should be a contribution to earnings from new operations. It may be too much to expect that present market conditions will continue, but even with some modest softening of markets a further increase in earnings can be achieved. Unless the recession is unexpectedly severe, 1980 should be a satisfactory year.

Longer term, the outlook is encouraging. Results in 1979 demonstrate that Noranda has substantial earning power under circumstances where product prices approach the levels needed to justify new capacity. With financial strength being restored, Noranda is once again in a position to undertake new projects which should contribute to earnings growth in the years ahead. The potential of Canadian Hunter to contribute significantly to Noranda's results is coming closer to being realized. We believe that a solid foundation has been established for the 1980's.

The years 1974 through 1978 were particularly difficult ones for Noranda, characterized by inflation, weak markets, totally inadequate earnings and an extended financial position. These circumstances required stringent controls over production levels, operating costs and new capital commitments, which placed a heavy burden on employees at all levels in the Noranda Group. The fact that Noranda has emerged from this period in a strong position is the result of the loyal, dedicated and highly effective efforts of these employees. To them, on behalf of the shareholders, the Directors wish to express their admiration and gratitude.

On behalf of the Board,

Alfred Powis

Chairman and President

Toronto, Ontario, February 19, 1980.

Exploration and Development

CANADIAN HUNTER JOINT VENTURE (74.0%)		
$ Millions	1979	1978
NORANDA'S SHARE		
Sales	9.2	8.7
Operating Profit	2.4*	2.9
*(before $14.9 million exploration write off)		

PRODUCTION		
OIL AND NATURAL GAS LIQUIDS		
Thousands of barrels	Total	Noranda Share
Gross	474.8	353.3
Net of Royalty interests	377.7	281.1
GAS Millions of cubic feet		
Gross	8,135	6,049
Net of Royalty interests	7,399	5,500

Increases in natural gas production from new wells in northeastern British Columbia and at Keg River were offset by sales restrictions imposed by excess industry supply. Gas sales through the Elmworth and Wapiti plants commenced on November 1, with the initial maximum daily rate of 37.5 million cubic feet (MMcf) per day at each plant. Hunter's Elmworth-Wapiti production, net of royalties, to year-end was 1,111 MMcf (Noranda share – 822 MMcf). Production for the first year is limited to an average 30 MMcf per day from each plant. This will increase from November 1, 1980 when the contract rate moves up to a basis of 1 MMcf per day for each 7,300 MMcf of reserves.

Hunter's 82.5% interest in the Kipp Coaldale gas field and approximately 120,000 acres of adjacent exploratory lands were sold to Husky Oil during August for $8.0 million. Coincident with the sale of Kipp Coaldale, the three outstanding future annual instalments on the Giant Mascot production payment were repurchased for $5.9 million.

Land acquisitions at Alberta and British Columbia Crown sales totalled 153,000 net acres. Effective October 1, Hunter's interests in wells and undeveloped lands in the Lloydminster heavy oil area were traded to Home Oil in return for a net 118,000 acres of exploratory lands held by Home in the British Columbia Deep Basin area. Hunter's land position at year-end, including the above mentioned additions and net of Kipp Coaldale and other dispositions, was:

	Gross Acres	Net Acres
Leases	1,072,000	569,000
Reservations and Licences	1,907,000	1,490,000
Total	2,979,000	2,059,000

Shortly after the year-end exploration rights were acquired on 4.8 million acres of Crown permits in the Nechako Basin in the central interior of British Columbia. Hunter is committed to a $27.5 million expenditure on geophysical work and drilling on these lands over the next five years.

Exploratory drilling activity continues to be concentrated in the Elmworth and adjacent Deep Basin areas in Alberta and British Columbia. A major portion of development and reserve delineation drilling in 1979 also was in Elmworth-Wapiti and other Alberta Deep Basin accumulations. There are now 76 Hunter interest wells along the Falher productive trend in Elmworth-Wapiti; additional commercial gas accumulations in the Cadotte and Cadomin formations have also been partially delineated in these field areas. At South Gold Creek, about 50 miles southeast of Elmworth, three additional wells were drilled for gas sales commencing early in 1980 at an initial rate of 8 MMcf per day (Noranda share – 1.4 MMcf per day).

Canadian Hunter participated in the drilling of 124 exploratory and development wells, resulting in 23 oil and 76 gas producers, a success ratio of 80%.

Noranda's share of reserves at year-end, before royalty and after allowance for maximum share to be earned by Esso, is as follows:

	Oil and Natural Gas Liquids (millions of barrels)	Marketable Natural Gas (billions of cubic feet)
Proven	2.4	476
Probable	2.6	400
Proven + Probable	5.0	876
Established	3.6	629

Proven reserves are volumes that are considered recoverable with a high degree of certainty under anticipated operating and economic conditions. Proven reserves may be assigned to both developed and undeveloped lands.

Probable reserves are volumes that may be recovered from lands in the vicinity of proven reserves but where there is some degree of geological, engineering, operational or economic risk.

Established reserves are those reserves recoverable under current technology and present and anticipated economic conditions, specifically proven by drilling, testing or production, plus that judgement portion of contiguous recoverable probable reserves that are interpreted to exist with reasonable certainty from geological, geophysical or similar subsurface information.

Esso Resources' earning expenditures on seismic and drilling, under their farm-in arrangement commenced in August 1978, reached $100.0 million late in 1979; the remaining $50.0 million earning increment will be expended before mid-1980. At this point, Esso will have earned 12½% of Hunter's Elmworth-Wapiti holding and 17½% of all other property and reserve interests held by Hunter as of August 1, 1978.

Esso expenditures under various option arrangements totalled $13.2 million to the end of 1979. Petromark has contributed an additional $13.4 million in expenditures to the end of 1979 on top of a regular joint venture share to maintain its 10 per cent overall interest earned to the end of 1978. When the maximum Esso farm-in interest is earned, Noranda's and Agnew Lake's interest in the Canadian Hunter Joint Venture will have been reduced to approximately 73.5% and 14.7% re-

spectively with Petromark retaining 11.8%. Effective November 1, Agnew Lake sold one-quarter of its interest in the joint venture to Domtar Limited for $35.0 million.

Total 1979 expenditures were as follows: ($ million)

	Land Acquisition and Exploration	Oil and Gas Development	Total
Esso	8.9	91.4	100.3
Noranda	48.7	(.2)	48.5
Petromark	11.7	5.2	16.9
Agnew	10.9	.4	11.3
Domtar	.4	.1	.5
Total	80.6	96.9	177.5

Noranda's gross investment since 1973 has been $158.4 million. Its share of cash income from production operations over the period has been $36.9 million, with a resulting net investment at the end of 1979 of $121.5 million.

PANARCTIC OILS (4.1%)

A significant offshore gas discovery was established in Whitefish H-63 approximately midway between Melville and Lougheed Islands. One of three gas bearing zones penetrated flowed 8 MMcf per day on initial test. A follow-up well now drilling also will test deeper prospective zones. Three other wells drilled during 1979 were dry and abandoned.

With no additional financing subscription during the year, Noranda's investment remains at $10.1 million.

NORANDA EXPLORATION

During 1979, $19.9 million was spent on exploration and development. Of this total, 53% was spent in Canada, 39% in the U.S.A. and 8% in other countries.

An aggressive exploration program was continued throughout Canada with emphasis on base and precious metals and uranium. Exploration was initiated in central Newfoundland in a joint-venture with Terra Nova Explorations Ltd. Major programs were continued in the Matagami and Noranda areas of Northwestern Quebec, in part under joint-venture agreements with Quebec Mining Exploration Company (Soquem) and Société de Développement de la Baie James. Initial exploration on a gold prospect in northern Ontario produced encouraging results. A joint-venture agreement was concluded with Algoma Central Railway covering selected ACR townships in Northwestern Ontario. Major exploratory drilling programs were continued on two uranium prospects in Saskatchewan, one with the Saskatchewan Mining Development Corporation and Gulf Minerals Canada Limited, the other with Saskatchewan Mining Development Corporation and Central Electricity Generating Board Exploration (Canada) Limited. Reconnaissance programs for molybdenum mineralization were increased in British Columbia. These included two joint ventures, one with Brenda Mines and one with Amax Potash Limited. Work continued in the Yukon and Northwest Territories.

In the U.S.A., reconnaissance programs for molybdenum have resulted in the acquisition of nine properties. Encouraging molybdenite mineralization was intersected in one drill hole at Liver Peak, Montana, in a joint venture with Armco Inc. The exploration adit at Greens Creek, Alaska, was completed and several million tons of high grade silver-gold-zinc ore have been indicated by underground drilling.

Aggressive exploration programs continue in Australia in the search for base metals, cobalt and gold, and in South America activities were continued with the examination of gold, base metal and uranium properties of merit.

In Ireland, studies continued on the Ballinalack property, and additional drilling was carried out on the Harberton Bridge property.

Applications have been submitted for permits covering placer gold prospects in Italy.

Participation continued in the consortium studying methods of mining manganese nodules from the ocean's floors. The study is nearing completion and activities have been wound down to an analysis of the data accumulated.

"Roughnecks" on an oil and gas well drilling platform.

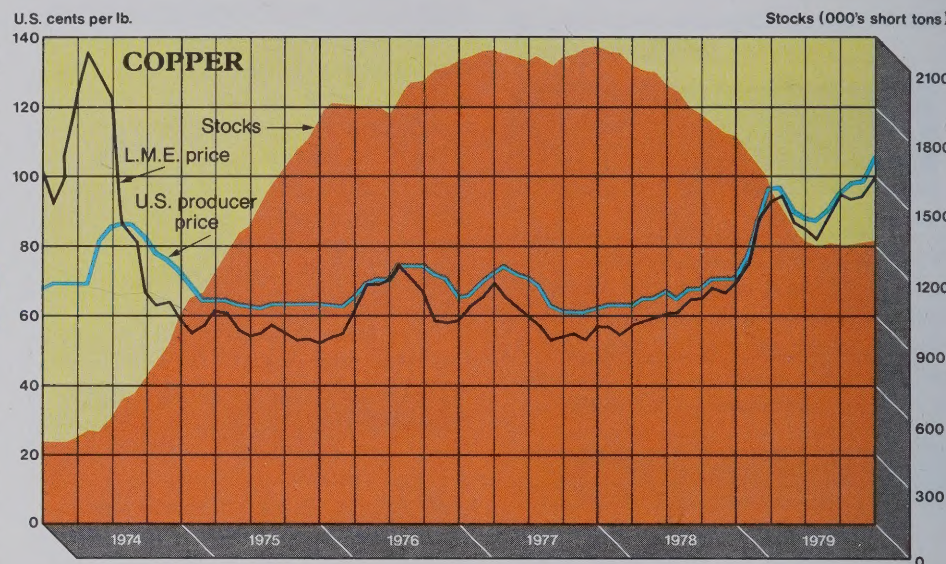
MATTAGAMI LAKE EXPLORATION

This independent exploration company was formed following the merger of Mattagami Lake Mines Limited into Noranda. This decision provided a continuation for Mattagami's exploration program and in 1979 a total of $2.1 million was expended in Canada and Spain. Five of the 28 active work projects produced results of interest. Work will continue on 26 including four new projects in 1980. The company is presently involved with six other mining companies in seven joint venture programs in Canada, all of which are managed by Mattagami.

In addition, Mattagami is contributing 25% of the exploration funding for the Iberian Exploration Syndicate in Spain where encouraging results are being encountered.

Markets
METALS, PHOSPHATES AND POTASH

Metal prices rose significantly in 1979. The main influences were escalating oil prices, inflation, the declining value of the U.S. dollar, political disturbances in the Middle East, and a growing awareness of the costs of future production and the prices needed to justify new investment.



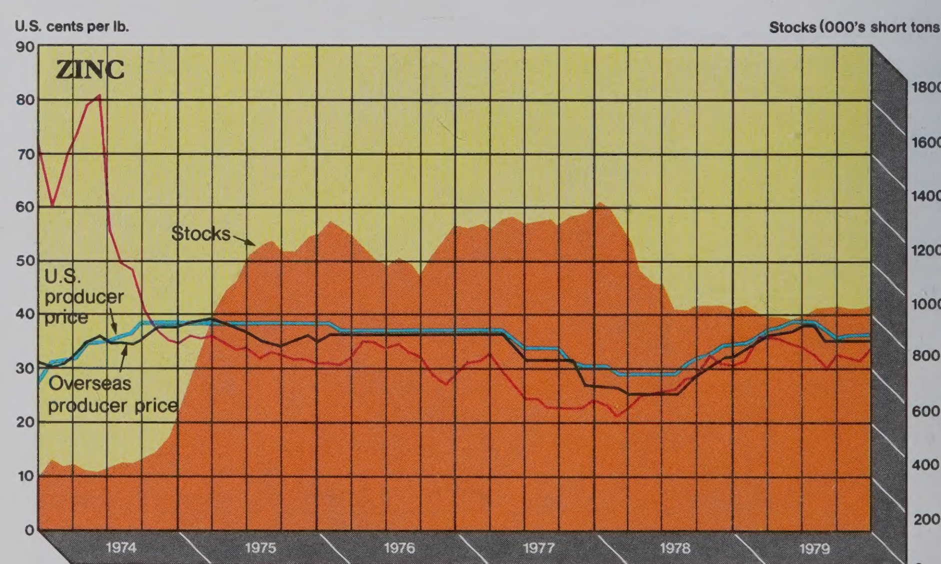
COPPER

WESTERN WORLD BALANCE – '000 Short Tons	1977	1978	1979
Supply	7,604	7,625	7,780
Consumption	7,535	8,035	8,224
Year-end Stocks	2,086	1,676	1,232

Refined consumption rose for the fourth consecutive year to a new record but slackened in the last quarter in response to U.S. auto industry and housing cutbacks. This increase occurred in the face of reduced availability due to strikes in Canada and production shortfalls and transport difficulties in Africa.

As in 1978, heavy withdrawals from London Metal Exchange stocks were made to meet physical copper requirements. U.S. Commodity Exchange stocks declined to a lesser extent but by year-end industry inventories were approaching normal levels.

Prices advanced strongly. The L.M.E. quotation peaked at U.S. $1.10 in October and surged again this year to $1.94 in February. North American producer prices responded closely to the New York Commodity Exchange quotations throughout the year. Canadian prices followed, adjusted for exchange, moving up to $1.25 at year-end.



ZINC

WESTERN WORLD BALANCE – '000 Short Tons	1977	1978	1979
Supply	4,710	4,630	5,100
Consumption	4,660	5,030	5,090
Year-end Stocks	1,215	815	825

Until July, demand was at a high level reflecting stronger economic activity in most industrialized countries and some rebuilding of consumer inventories. Producers' stocks declined and prices rose in three stages from U.S. $720 to $845 per metric ton overseas and from 34.5¢ to 39.5¢ per pound in the U.S.A. Thereafter, increasing evidence of a downturn in the U.S.A., higher interest rates and normal summer slowdowns in other countries resulted in some inventory liquidation by consumers and a sharp decline in demand. Despite smelter production cutbacks, producers' stocks rose and prices fell to $780 overseas and 37.5¢ in the U.S.A.

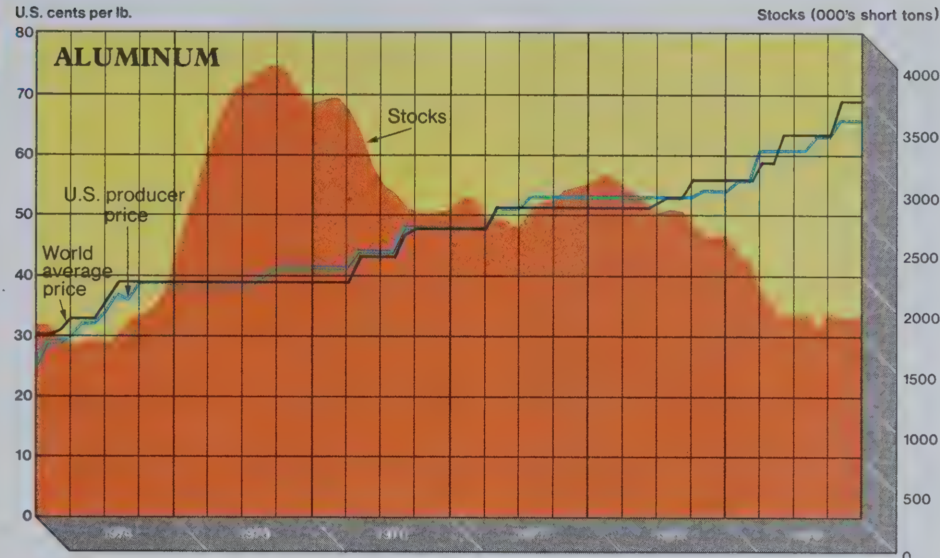
A forecast increase in world mine production did not materialize due to closures, strikes and other disruptions, and by the end of the year most concentrate stocks were at minimum levels relative to planned metal production in Western countries and the continued strong demand for concentrate by Eastern bloc countries.

ALUMINUM

WESTERN WORLD BALANCE – '000 Short Tons	1977	1978	1979
Supply	12,235	12,830	12,868
Consumption	12,039	13,248	13,530
Year-end Stocks	2,775	2,337	1,675

Due to power curtailments, high energy costs and strikes in Canada, the operating rate for Western smelters was limited to 89% and production was virtually unchanged. Japanese operations improved after mid-year, reaching 66.5% of rated capacity in the fourth quarter.

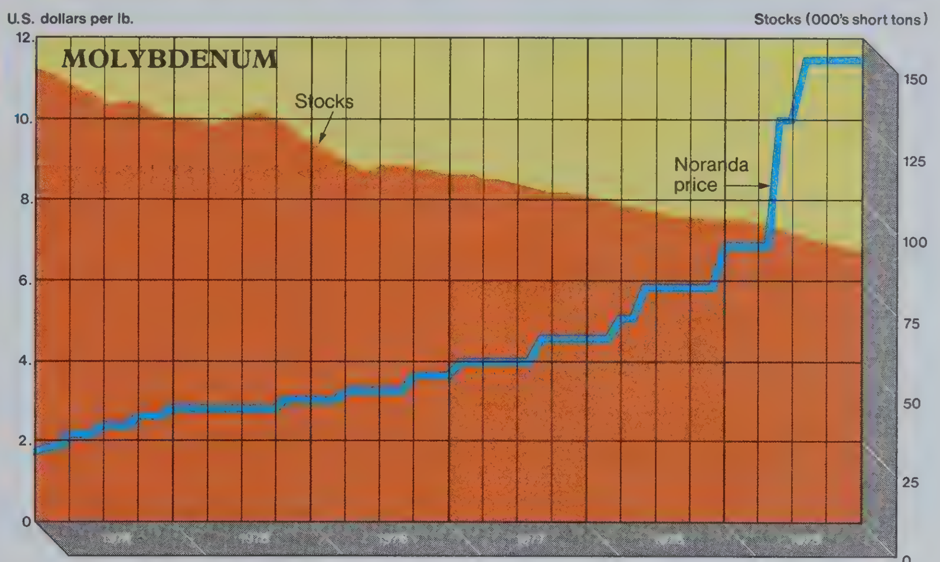
Primary consumption was marginally higher and supplies tight. With stocks declining, world prices increased from U.S. 56¢ to 69.2¢ per pound.



MOLYBDENUM

WESTERN WORLD BALANCE – '000,000 lbs.	1977	1978	1979
Supply	182	192	191
Consumption	183	198	201
Year-end Stocks	101	95	85

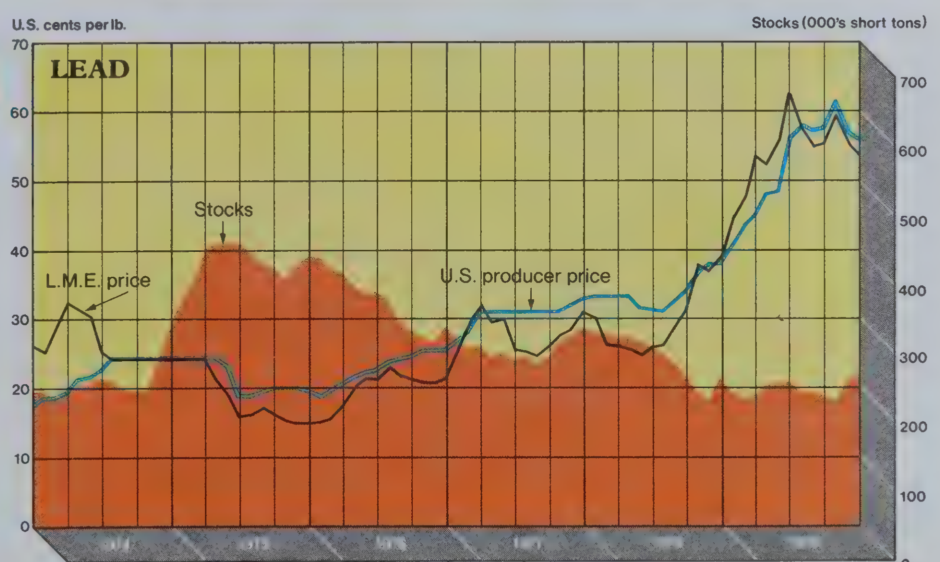
Molybdenum demand remained high due to specialty and low alloy steels and healthy performances in the lubricant, pigment and chemical sectors. Supplies in Western industrial countries were tight and frustrated by strikes, production problems and high-priced exports to Eastern bloc countries. Noranda's price rose in three steps from U.S. $6.89 to $11.57 per pound for molybdenum in oxide. At this level, investment in new production is being encouraged.



LEAD

WESTERN WORLD BALANCE – '000 Short Tons	1977	1978	1979
Supply	4,150	4,090	4,180
Consumption	4,170	4,170	4,170
Year-end Stocks	290	210	220

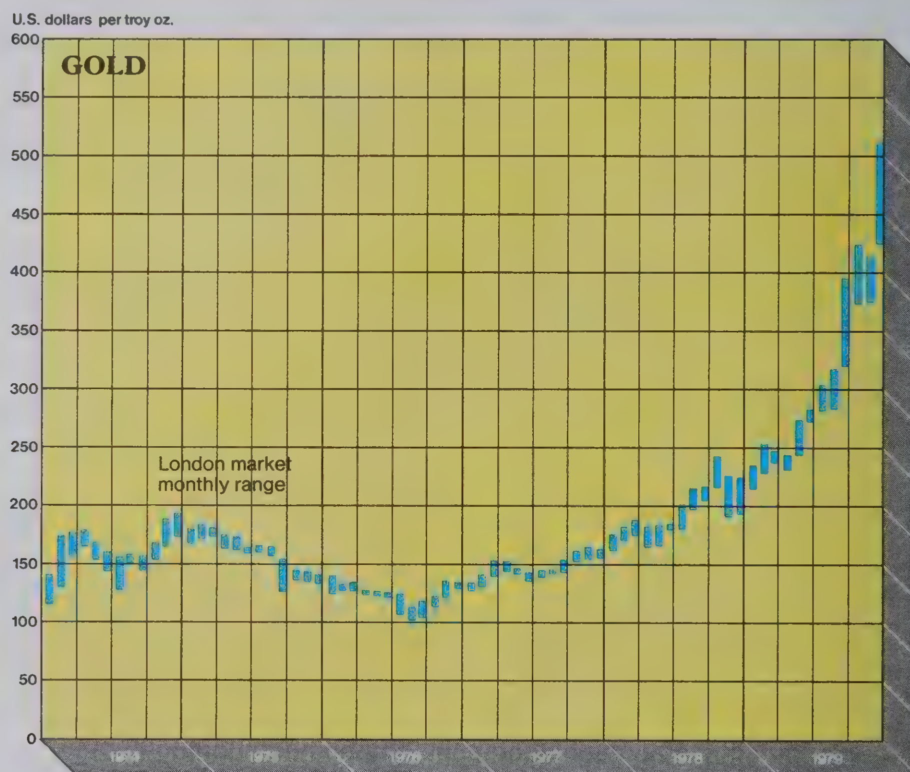
With consumption at the same level as in the two previous years and a further increase in exports to Eastern bloc countries, producers' stocks remained low during most of the year despite a modest increase in production. Prices moved steadily upwards during the first half and by mid-year were between U.S. 55¢ and 60¢ per pound in the U.S.A. and over 60¢ on the London Metal Exchange. These levels weakened later in the year when lower demand for batteries in North America, consumer inventory adjustments and increased secondary production caused a sharp rise in producers' stocks.



Inspecting refined lead prior to shipment.

GOLD			
WESTERN WORLD BALANCE – '000,000 Troy Ounces	1977	1978	1979
Supply	51.7	56.0	59.5
Industrial Consumption	44.6	49.9	47.0
Surplus	7.1	6.1	12.5

Prices rose U.S. $100 per ounce by early September, and another $100 by early October. Then after a brief consolidation, they increased another $100 to $524 at year-end and to a high of $843 in January, 1980. The movement initially reflected concerns over inflation and the weakening U.S. dollar. The final massive and unexpected breakout was due to the OPEC oil price increases, the Iranian hostage crisis, and tensions arising from the Russian invasion of Afghanistan, all compounded by widespread speculation.



Bar of gold bullion.

Copper cathodes at Division C.C.R.

SILVER

WESTERN WORLD BALANCE – '000,000 Troy Ounces	1977	1978	1979
Supply – Primary	260	262	270
— Secondary	171	168	157
Consumption	430	450	465
Surplus (Deficit)	1	(20)	(38)

Silver prices responded to events and pressures similarly to gold but more dramatically, rising more than four times to U.S. $28.00 at year-end and then to $48.00 in January, 1980.

The resultant increase in the cost of silver products has reduced consumption while the surge in availability of secondary silver-bearing material continues to exceed refinery capacity. These trends will improve the future supply/consumption balance.

PHOSPHATES

WORLD BALANCE – '000 Short Tons P_2O_5 Year Ending June 30	1977	1978	1979
Supply	32,010	33,781	35,296
Consumption	30,354	31,099	33,176
Difference	1,656	2,682	2,120

Phosphate fertilizer consumption increased by 7%, reflecting strong world markets for grain and other agricultural products. Product prices in the U.S. Gulf increased by 60% to U.S. $230 per metric ton as raw material costs rose correspondingly.

The decision by the U.S.A. to reduce grain sales to the U.S.S.R. in response to escalating international tensions could have an adverse effect on North American demand in 1980.

POTASH

WORLD BALANCE – '000 Short Tons K_2O Year Ending June 30	1977	1978	1979
Production	26,907	28,101	29,362
Consumption	25,408	26,664	27,922
Difference	1,499	1,437	1,440

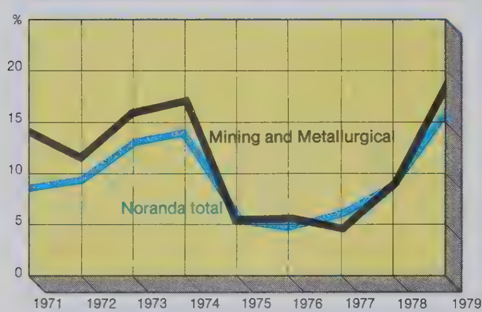
North American production increased 1.8% to 9.3 million tons of K_2O. No further new capacity additions are scheduled until 1982. With sales up 6% in North America and 16% offshore, inventories were drawn down by 400,000 tons.

The published prices for premium grades increased 17%, or U.S. 15¢ per K_2O unit, to 98¢ and $1.00.

Phosphate storage, Belledune Fertilizer, Belledune, N.B.

Mining and Metallurgy

RETURN ON NET ASSETS



Continued improvement in price and demand for most base metals and the low exchange value of the Canadian dollar combined with good productivity at most of the operations resulted in substantially improved earnings over all previous years.

The eight-month strike at the Gaspé copper mine was settled on June 11 and normal operations resumed almost immediately. With present copper and molybdenum prices, operations are profitable. The only other work stoppage was at the Brenda mine in British Columbia where there was a one-month strike before signing of a new agreement in October. Nevertheless high productivity and the increased molybdenum price resulted in a very successful year at Brenda. With improved prices, the cutoff grade has been reduced and the reserves and mine life have been increased. Due to very efficient operations, the Geco mine regained its prominent position among the Noranda mining group.

The wholly-owned Central Canada Potash mine had a reasonably good production year, and with the new Saskatchewan Potash Resource Payment Agreement, a small net profit was earned, which was the first in its 9½ years of operation.

The acquisition of Orchan and Mattagami was completed at the beginning of the year and operations have been successfully integrated with significant improvements in operating efficiencies and metallurgical recoveries.

Production goals at Kerr Addison's Agnew Lake uranium operations could not be attained and the operation was put on a salvage basis with a write-off of $59.5 million, of which Noranda's share was $24.5 million. Mining will be terminated in the first quarter of 1980 and the broken ore will be leached for an indefinite period, probably at least two years.

Copper smelter and refinery production was lower than that of the previous year because of the Gaspé strike. Zinc output at the Valleyfield plant reached a record level of 219,000 tons while Brunswick's lead production was somewhat lower because of a reduction in purchase of concentrates from outside sources.

With higher metal prices and the company's improved financial condition, several new deposits have either been acquired during the year or are under development.

Mines new to the group and in

Copper wire bars in casting mold at Division C.C.R.

NORANDA – INTERESTS

Summary of Canadian Mine Production

		PRODUCT						
	Ore Treated (000 tons)	Copper (tons)	Zinc (tons)	Lead (tons)	Silver (000 oz.)	Gold (ounces)	Molyb-denum (000 lbs.)	Muriate of Potash (000 tons)
Noranda Divisions	19,241	84,728	112,400	560	1,952	37,245	2,274	1,259
Brenda	10,004	11,820					5,590	
Brunswick	3,276	4,000	232,000	79,600	5,257			
Heath Steele	374	2,107	13,595	2,647	255			
Kerr	193					62,300		
Mattabi	1,042	3,850	63,330	4,620	2,120			
Pamour	1,738	1,705			48	139,083		
Placer*	18,876	57,170					5,946	

**Endako, Craigmont, Gibraltar.*

Summary of Smelting and Refining Production

	PRODUCT					
	Copper (tons)	Zinc (tons)	Lead (tons)	Silver (000 oz.)	Gold (ounces)	Cadmium (pounds)
Horne Division	232,000					
Division Mine Gaspé	38,000					
Division CCR	363,000			20,648	410,000	
Brunswick			62,600	3,097		
Canadian Electrolytic Zinc		219,900				987,500

production in 1979 are as follows. The Chadbourne gold mine at Noranda, Quebec, commenced production in July and 700 tons of ore per day are milled at the Horne concentrator. Heath Steele Mines Limited, which has a 75% interest in the Little River Joint Venture, was acquired in October. Operations at this 4,000 tons-per-day base metal mine in northern New Brunswick are running smoothly. The Granisle copper mine in north central British Columbia was purchased in December. Rationalization of some of the functions with the nearby Bell mine should produce some cost savings. All of the above mines operated profitably since start-up or acquisition.

Mines under development in 1979 are as follows. The Lyon Lake mine near Mattabi in northwestern Ontario will commence production in July, 1980 and the ore will be milled in the Mattabi concentrator. This is a relatively high-grade base metal deposit with good potential for additional reserves. The Lakeshore copper mine in Arizona will begin production of cathode copper from oxide ore in mid-1980. The mining rate of 6,000 tons per day will produce 20,000 tons per year of cathode copper. Mining of the sulfide ore at a rate of about 10,000 tons per day is tentatively planned for 1982. The Ontario Project lead-zinc-silver mine in Park City, Utah, will begin production at 440 tons per day in the third quarter of 1980, increasing to 750 tons per day in early 1981. This operation is a 50% Noranda 50% Pamour joint venture, with one-third of the profits going to United Park City Mines Company.

The Camlaren project is a small, high-grade gold property in the N.W.T. The known ore reserve will be mined out in less than one year and treated in a portable 150 ton-per-day mill. If no further reserves are found, this mill will be available for other high-grade gold properties anywhere in Canada. Les Mines Gallen and New Insco are two small base metal deposits near Noranda, the ore from which will be milled in the Horne concentrator. The Hopewell phosphate deposit in Florida will produce 500,000 tons of 72% Bone Phosphate of Lime phosphate rock per year with start-up scheduled at the end of 1981. The Phelps-Dodge property in Northwest Quebec is a marginal base metal deposit. The ore will be treated in the Mattagami mill beginning in early 1982. The Gray Eagle gold property in Northern California is in a preliminary state of development and is expected to come on stream in 1982. The Goldstream base metal deposit, 90 kilometers north of Revelstoke, B.C., will be brought into production at the end of 1982. Pending finalization of project financing, the Andacollo copper deposit in Chile will be developed for production in early 1983 at a rate of 44,000 tons per day.

At the Blackbird cobalt-copper mine in Idaho development work is being conducted to establish a mining operation, expected to be at the rate of about 2,000 tons-per-day. Approval of an Environmental Impact Statement will be required prior to start of production, anticipated for 1984.

Total capital and preproduction costs of these projects at current exchange rates are approximately $828 million, of which $159 million has been spent to date, $380 million is anticipated in project financing, $68 million will be provided by other partners and $221 million will be provided by Noranda.

The Eluma copper smelter and refinery in southern Brazil is still under study and is awaiting Brazilian government approval.

A table summarizing statistics on the various mining projects is given below.

MINING PROJECTS

Project	Approximate Noranda Interest %	Location	Mineral Inventory Million Tons	Grade	Date of Start of Production	Prduction Rate Tons/day	Capital Cost $ Million
Chadbourne	100	NW Quebec	1	0.14 o.p.t.Au; 0.08 o.p.t.Ag	July '79	700	$ 4
Heath Steele (100%) — Little River Joint Venture	75	N.B.	31	1.1% Cu; 1.5% Pb; 4.5% Zn; 1.7 o.p.t. Ag	Nov. '79	4,000	Traded Phosphate Acreage
Granisle	100	B.C.	42	0.4% Cu	Dec. '79	14,000	$ 32
Lyon Lake	100	Ontario	4	6.5% Zn; 1.2% Cu; 3.4 o.p.t. Ag; 0.6% Pb	July '80	1,000	$ 27
Camlaren	52	N.W.T.	0.04	0.88 o.p.t. Au	July '80	150	$ 4
Lakeshore	77.5	Arizona	22 Oxide 50 Sulfide	1.2% Cu; 0.7% Cu;	July '80 July '82	6,000 10,000	US$ 40 US$ 42
Ontario (Park City)	33	Utah	0.5 Proven	4.7 o.p.t. Ag; 8.4% Zn 5.9% Pb	July '80	440	US$ 12
			0.8 Probable		Apr. '81	750	
F Group	100	Ontario	0.6	8.1% Zn; 1.0% Cu; 0.5% Pb; 1.8 o.p.t. Ag	Jan. '81	400	$ 7
Mines Gallen	51	NW Quebec	1.8	5.4% Zn	July '81	1,000	$ 5
Hopewell	100	Florida	10	72% Bone Phosphate Lime	Dec. '81	1,400	US$ 30
Phelps Dodge	60-85	NW Quebec	1.7	1.1% Cu; 4.9% Zn	Jan. '82	500	$ 6
Gray Eagle	100	California	1	0.16 o.p.t. Au; 0.48 o.p.t. Ag	June '82	700	US$ 10
New Insco	100	NW Quebec	0.6	2.6% Cu	'82	500	$ 5
Goldstream	60-85	B.C.	4	3.7% Cu; 2.7% Zn; 0.56 o.p.t. Ag	Dec. '82	1,360	$ 62
Andacollo	51	Chile	210	0.6% Cu	Jan. '83	44,000	US$390
Blackbird	75	Idaho	4 Proven 4 Probable	0.76% Co; 1.2% Cu	Apr. '84	2,000	US$ 78

Operations

LEGEND	
Cu	copper
Zn	zinc
Pb	lead
Ag	silver
Au	gold
Mo	molybdenum
Co	cobalt
Hg	mercury
K_2O	potassium oxide
U_3O_8	uranium oxide
o.p.t.	ounces per ton

COPPER GROUP

$ Millions	1979	1978
Sales	489.7	359.0
Operating Profit	176.5	52.2
Assets Employed	427.6	243.9

GECO DIVISION

ORE TREATED			
Tons (000)	GRADE % Cu	% Zn	Ag o.p.t.
1,627	1.82	3.24	1.72

MINERAL INVENTORY			
Tons (000)	GRADE % Cu	% Zn	Ag o.p.t.
22,438	1.86	3.80	1.53

METAL CONTENT OF CONCENTRATES PRODUCED			
TONS Cu	Zn	Pb	Ag oz.
27,000	41,700	580	1,930,900

Average grade of the ore mined was higher than in 1978 as development of some higher grade pillars and remnants provided a larger proportion of production and offset the slightly lower tonnage of ore treated.

The modular training system continued to have a stabilizing influence on safety performance and on recruitment, which is becoming more difficult in northern locations such as Manitouwadge.

Progress was continued in the application of more mechanized mining equipment for ore extraction and milling controls to increase metal recoveries.

Since mining began 25 years ago, 591,810 tons of copper, 994,300 tons of zinc and 42.6 million ounces of silver have been recovered from 33 million tons of ore.

HORNE DIVISION

SMELTER PRODUCTION – (Tons 000)

	Material Smelted (Excludes Flux) Noranda	Custom	Cu Content of Anodes Produced
1979	158	802	232
1978	161	735	226
1977	182	798	243
1976	176	799	229
1975	287	735	231

Receipts of custom concentrate were up approximately 10% over 1978. Record quantities of scrap and secondary materials were treated.

Gold bearing fluxes were tested successfully in the smelter for a prospective customer located in Northwestern Quebec. The Chadbourne mine began deliveries of ore to the Horne concentrator and 103,000 tons of ore were milled in 1979.

$1.5 million has been spent in a continuing program to improve working conditions in the smelter.

A major overhaul of electrostatic precipitators used for cleaning reverberatory gases was completed. While dust losses are reduced, the overall objectives of this program have not been attained. Planning is underway to seek alternative methods to reduce dust emissions.

The cities of Rouyn and Noranda are the targets of a provincial government pilot project in which the environment and the impact of mining and smelting operations in the region are being examined. The results are being made public and citizens of the region are expected to make recommendations to government on the level of constraints to be imposed. The Horne Division has cooperated with government research teams where permitted and has, at the same time, made every effort to inform the public and its employees of its position.

BABINE DIVISION

On November 30, Noranda bought the assets of the Zapata Granby Corporation, formerly owned by the Zapata Corporation of Houston, Texas. Their Granisle mine, a main asset, was grouped with the Bell Copper operation to form the Babine Division.

Bell Mine

ORE TREATED		
Tons (000)	GRADE % Cu	Au o.p.t.
5,475	0.389	0.01

CONCENTRATE PRODUCED		
Tons	METAL CONTENT Cu Tons	Au Oz.
59,350	16,090	23,474

MINERAL INVENTORY		
Tons (000)	% Cu	Au o.p.t.
44,525	0.52	0.011

Mine production was as planned and over 9 million tons of waste rock and ore was extracted from the pit. The head grade remained low due to the scheduling requirements for the pit expansion. The $20 million mine/mill expansion project got underway in the second quarter and during the year over 2 million cubic yards of overburden were stripped by the contractor and additional new mining equipment was delivered and placed into service.

Mill production averaged 15,323 short dry tons per day, or 11% higher than last year. Detailed design was started for the installation of additional flotation cells and a regrind mill. This equipment is expected to improve metal recovery when the concentrator expansion to a rate of 17,000 tons per day is completed in 1980.

The joint operation of the Bell and Granisle mines offers certain economies of scale which should result in increased efficiency. Workers at both operations live in the village of Granisle and the Labour Relations Board of B.C. recently granted certification to one union local for both properties. Bargaining for a new contract will commence early in 1980.

Granisle Mine

ORE TREATED (one month)		
	Tons (000)	GRADE % Cu
	394	0.422

CONCENTRATES PRODUCED	METAL CONTENT		
Tons	Cu Tons	Au Oz.	Ag Oz.
4,211	1,458	1,221	12,633

MINERAL INVENTORY		
	Tons (000)	GRADE % Cu
	41,943	0.41

Granisle has experienced difficulty in maintaining the required stripping ratio due to mobile equipment problems. A new electric shovel to be delivered early in 1980 is expected to alleviate the situation. A small molybdenum concentrator is nearing completion which is expected to produce approximately 140,000 pounds of molybdenum in 1980.

Similar difficulties in recruiting tradespeople and technical staff are experienced at Granisle as at Bell and both production and maintenance frequently suffer as a result.

Work is proceeding on the refurbishing of some areas of the plant and it is confidently expected that the through ore tonnage of 13,700 tons per day will be maintained through 1980.

DIVISION CCR
(formerly Canadian Copper Refiners)

REFINED METAL PRODUCTION	Copper (tons)	Silver (oz)	Gold (oz)
1979	363,000	20,648,000	410,000
1978	388,000	22,600,000	455,000
1977	383,000	21,896,000	372,000
1976	387,000	22,501,000	336,000
1975	395,000	19,835,000	346,000

Production of refined copper was low as a consequence of the work stoppage at Mines Gaspé. Refinery operations did not return to normal levels until the fourth quarter of the year.

The program, started three years ago, to rehabilitate the buildings at CCR continued with the replacement of 81,000 sq. ft. of roof at a cost of $1.5 million. This phase of the restorative work will be completed in 1980.

Working conditions in the refinery building were much improved upon the completion of the new ventilation system, installed at a cost of $800,000.

New emission control equipment at the silver refinery and selenium plant assisted in meeting the new air regulations; however, substantial expenditures will be needed in 1980 to reduce stack emissions in the casting department.

Anodes emerging from Horne smelter preparatory to shipment to Division C.C.R.

DIVISION MINES GASPÉ

ORE TREATED	Tons (000)	Grade % Cu
Needle Mountain	629	1.24
Copper Mountain	5,583	0.43

MINERAL INVENTORY	Tons (000)	Grade % Cu
Needle Mountain		
– Proven Ore	7,334	1.21
– Probable Ore	3,488	1.20
Copper Mountain		
Sulphide Ore		
– Proven	101,784	0.40
– Probable	66,468	0.33
Oxide Ore		
– Proven	25,194	0.44
– Probable	4,751	0.40

SMELTING – (Tons 000)	CONCENTRATES		PRODUCTION	
	Gaspé	Custom	Cu	Acid
1979	110	55	38	71
1978	178	65	56	134
1977	235	93	76	169
1976	232	92	74	193
1975	205	111	73	175

Operations resumed on June 10 after an eight-month labour dispute.

Underground production from Needle Mountain was impaired by a general shortage of trained miners and tradesmen. Copper Mountain pit production was augmented with stockpiled low grade ore while efforts were directed to stripping waste from the upper benches. Consequently, with concentrator throughput as planned, metal recoveries were lower than normal. Molybdenum concentrate production contained 869,000 pounds of molybdenum metal.

Smelter operations after the long shutdown were better than anticipated but mechanical repairs delayed startup of the acid plant and affected subsequent acid production.

Engineering of modifications for control of the effluent from the oxide copper leaching plant is now in progress.

ZINC GROUP

$ Millions	1979	1978
100% BASIS		
Sales	192.9	131.1
Assets Employed	244.6	198.9
NORANDA'S SHARE		
– Sales	192.9	57.5
– Operating Profit	48.4	12.6
– Assets Employed	232.0	125.5

CANADIAN ELECTROLYTIC ZINC (90.2% Direct; 4.3% Indirect)

PRODUCTION	Zinc (Tons)	Cadmium (Lbs.)
1979	219,900	987,500
1978	176,200	866,600
1977	155,550	928,200
1976	125,800	380,000
1975	117,700	401,000

The zinc reduction plant in Valleyfield has been expanded three times since operations began in 1963. It is designed to produce 225,000 short tons per year. Since the latest expansion in 1976, zinc markets have been weak and the plant has, on average, operated well below capacity. During 1979, when markets improved, it was demonstrated over several months that the capacity of the plant is actually 660 tons per day or about 240,000 short tons per year.

A three-year collective agreement signed on June 5 was negotiated without labour disruptions.

In the casting department, modifications are underway to mechanize the pouring and handling of zinc slab and jumbo ingots. The installations will cost $2.5 million. Some tasks requiring heavy manual effort will be eliminated and improvements in safety, working conditions and product quality will be realized.

MATAGAMI DIVISION

ORE TREATED

Tons (000)	% Zn	% Cu	Ag o.p.t.	Au o.p.t.
1,465	5.37	0.73	0.783	0.017

CONCENTRATES PRODUCED

Total Tons	Zn Tons (Metal Content)	Cu Tons (Metal Content)
171,400	70,700	8,370

MINERAL INVENTORY

	Tons (000)	% Zn	% Cu	Ag o.p.t.	Au o.p.t.
Mattagami Lake	6,660	6.9	0.61	0.9	0.015
Orchan	190	6.20	0.57	0.7	0.014
Norita	3,500	3.57	2.16	0.8	0.020
Radiore No. 2	123	1.00	2.00	0.2	0.010

The amalgamation of the mines into the Matagami Division was completed during the year with good esprit de corps. The integration of exploration, milling, servicing and engineering has contributed to cost savings and overall efficiency.

Mining and underground development proceeded as planned at all operations. Work was resumed at Radiore No. 2 to recover a small ore remnant. Shaft deepening at Norita for the mining of the lower "A" Zone was in progress and is scheduled to be completed late in 1980. The deep exploration ramp was completed at the Mattagami Lake Mine. A diamond drilling program was started in the fourth quarter which will also include and correlate the deep exploration potential on the Orchan property.

Milling performance was at a high level. Since the second quarter, the ground ore pulp from the Orchan mill has been pumped to the Mattagami Lake mill for flotation. The instrumentation and computer control in this mill contributed to significant increases in the metal recovery from Orchan and Norita ores.

The collective agreement was renewed for three years in June and embraces for the first time all hourly-rated employees in the Division. In April the Mattagami Lake Mine was awarded the Ryan Trophy for the lowest accident frequency in its category for the period 1977-78.

Open pit mining at Mines Gaspé.

MATTABI MINES (60%)

ORE TREATED

Tons (000)	% Zn	% Cu	% Pb	Ag o.p.t.
1,042	6.91	0.55	0.77	2.85

CONCENTRATES PRODUCED

Total Tons	Zn Tons	Cu Tons	Pb Tons	Ag Oz
153,250	63,330	3,850	4,620	2,120,000

(Zn, Cu, Pb and Ag columns: METAL CONTENT)

MINERAL INVENTORY

	Tons ('000)	% Zn	% Cu	% Pb	Ag o.p.t.
Underground & Pit	3,785	6.97	0.57	0.77	2.92

Underground development continued in preparation for production in early 1981 when ore becomes depleted from the open pit. An addition to the mineral inventory this year included a newly-discovered ore lens containing 430,000 tons after dilution grading 6.27% zinc, 0.28% copper, 1.10% lead and 5.57 ounces of silver per ton. A $3.4 million expenditure for exploration on the property was approved in October.

Mill production and performance provided higher recovery of lead, zinc and silver. Copper head grade and recovery were lower than forecast. Silver production contributed greatly to revenue and earnings.

OTHER MINING AND METALLURGY		
$ Millions	1979	1978
NORANDA'S SHARE		
– Sales	233.5	88.7
– Operating Profit	29.1	3.7
– Assets Employed	327.7	107.9

ALBERTA SULPHATE

PRODUCTION	Tons
– Sodium Sulphate	43,600
MINERAL INVENTORY	
– Salts	2,431,000
– Recoverable Product	1,192,000

The dredge mining program was completed in the south lake. Both salt strength and inventory in solution were increased by 32% and 49% respectively over 1978 levels.

The market for Canadian sodium sulphate remained firm.

BELLEDUNE FERTILIZER

Good demand and much improved selling prices for fertilizers resulted in a satisfactory year for this operation. Shipments of nearly 200,000 tons of diammonium phosphate were the highest since 1974. To maintain this level of shipments, the development of export sales must be continued. The present international scene makes the outlook for increased export sales in 1980 uncertain.

BOSS MOUNTAIN DIVISION

ORE TREATED	Tons (000)	Grade % Mo
	547	0.142
METAL CONTAINED IN CONCENTRATE PRODUCED		Lbs. Mo
		1,405,200
MINERAL INVENTORY (Drill indicated)	Tons (000)	Grade % Mo
	5,044	0.13

Both tonnage and grade of ore treated were lower than for 1978. However, the improved price for molybdenum permitted continuation of the development and exploration programs which doubled the drill indicated reserve of lower grade material. Thus continuing profitable production is expected from both pit and underground mining.

Brunswick Smelter – tapping silver.

CHADBOURNE

ORE TREATED	
Tons (000)	Grade Au o.p.t.
103	0.136
METAL CONTAINED IN CONCENTRATE PRODUCED	
12,550 oz. Au	7,760 oz. Ag
MINERAL INVENTORY	
Tons (000)	Grade Au o.p.t.
1,000	0.14

This 700 tons per day gold mine, situated within the city of Noranda, began operations in July and production was treated in the Horne Mill. Development costs were $3.4 million.

HEATH STEELE MINES

ORE TREATED (3 Months)

Tons (000)	GRADE % Cu	% Pb	% Zn	Ag o.p.t.
374	0.87	1.40	4.59	1.44

CONCENTRATES PRODUCED

Total Tons	METAL CONTENT Cu Tons	Pb Tons	Zn Tons	Ag Oz.
49,000	2,107	2,647	13,595	254,975

MINERAL INVENTORY

Zone	Tons (000)	GRADE % Cu	% Pb	% Zn	Ag o.p.t.
B Proven	21,044	1.20	1.54	4.21	1.76
Probable	3,414	0.92	1.65	4.77	1.80
A-C-D Proven	5,270	1.00	1.31	5.34	1.65
E Proven	1,546	1.51	2.01	4.39	2.33
Total	31,274	1.15	1.54	4.47	1.78

On October 1 1979 the company acquired all of the shares of Heath Steele Mines Limited. Heath Steele has a 75% interest in the Little River Joint Venture which operates a 4,000 tons-per-day lead-zinc-copper mine and mill near Newcastle, New Brunswick.

In the fourth quarter, mill throughput was 4,068 short dry tons per calendar day versus 3,364 in the first nine months of 1979. Operating costs per unit of production have decreased significantly. Tonnage treated during 1979 was the highest ever attained.

The current collective agreement expires November 24, 1980.

CENTRAL CANADA POTASH

PRODUCTION	Tons (000)	Grade % K_2O
ORE MINED	3,428	25.7
MURIATE PRODUCED	1,259	60.4
RESERVES	568,000	27.0

Following acquisition, at the end of 1978, of CF Industries' 49% interest, C.C.P. became a Division of Noranda Metal Industries by statutory declaration on February 1.

Underground mining machines' advance was 37 lineal miles for a total of 306 miles since mining began in 1969. However, the major equipment overhaul program continued to limit ore production. Shipments reached a record 1,415,000 tons, some 34% of which was moved in C.C.P. leased railcars.

After C.C.P. had agreed to terminate all legal actions to recover potash prorationing fees and reserve taxes previously paid to the Government of Saskatchewan, the Potash Resource Payment Agreement became effective, retroactively from July 1, unless the scheme is terminated by an Act of the Legislature of Saskatchewan. The tax level, while reduced thereby, still remains the highest in the country. A profit of $30.6 million was reduced to $1.4 million after taxes.

Drilling for blasting of ventilation raise at Brunswick's No. 12 mine, Bathurst, N.B.

MAJOR SUBSIDIARIES AND ASSOCIATES		
$ Millions	1979	1978
100% BASIS		
Sales	961.8	583.5
Assets Employed	1361.8	1126.2
NORANDA'S SHARE		
— Sales	555.2	346.4
— Operating Profit	70.6	34.4
— Assets Employed	459.6	385.5

BRENDA MINES LTD (50.9%)		
EARNINGS — $ millions	1979	1978
NORANDA'S SHARE	11.8	7.4
ORE TREATED	GRADE	
Tons (000)	% Cu	% Mo
10,004	0.144	0.036
CONCENTRATE PRODUCED	METAL CONTENT	
Total Tons	Cu Tons	Mo Tons
45,380	11,820	2,795
MINERAL INVENTORY	GRADE	
Tons (000)	% Cu	% Mo
152,869	0.145	0.032

19 million tons were extracted from the pit, of which 10 million tons were processed through the concentrator. Diamond drilling in fringe areas of the pit has confirmed the presence of additional tonnages of mineralized material which can be treated profitably under current economic conditions. The mineral inventory has been adjusted accordingly.

Tonnage milled, at a rate of 27,400 tons per calendar day, was below plan due to the effect of a 33-day strike. Metal output was lower as a result and also reflects the reduced recoveries from treating lower grade and stockpile ore. Concentrate grades were normal and all production was sold as produced.

Exploration activity continued in the vicinity of the mine and in the two British Columbia and one United States joint ventures, but without positive results.

Earnings increased with higher metal prices and the favourable exchange rate on U.S. dollar sales. Dividends and extras paid during the year totalled $1.95 per share.

Oil and Gas Operations

An additional $16.6 million was invested in Beaufort Sea and other frontier area drilling programs to earn a small net profit interest in individual wells. Cumulative expenditures on these net profits investments 1977 through 1979 were $28.9 million. All such expenditures were subject to the special Frontier Allowance (double depletion) resulting in a relatively small after-tax investment.

Expenditures on Alberta and British Columbia petroleum activity totalled $10.3 million, comprising $2.2 million for exploration, $2.9 million for productive wells and facilities, and $5.2 million for property acquisitions. The earning phase on a major 25 project farm-out from Sulpetro Limited is about two-thirds completed; this program is being shared 66⅔% Brenda, 33⅓% Mattagami Refining. A second major exploration program was commenced during September with Marline Oil Corporation under which $2.0 million will be spent by the end of 1980.

Brenda participated in the drilling of 35 wells, of which 25 were completed as shut-in gas producers and 10 abandoned, a success ratio of 71%. Land holdings at year-end were 67,200 net acres. Proven gas reserves at December 31 as established by an independent consultant were 25 billion cubic feet gross (17 billion cubic feet net of royalty interests).

BRUNSWICK MINING AND SMELTING (64.1%)					
EARNINGS — $ millions					
NORANDA'S SHARE		1979		1978	
		43.3		18.0	
MINING		Tons (000)		Grade	
Ore Mined		3,276		12.54% Pb/Zn	
CONCENTRATE PRODUCED		METAL CONTENT			
Zn Tons		Cu Tons	Pb tons	Ag oz.	
232,000		4,000	79,600	5,257,000	
MINERAL INVENTORY	Tons (000)	%Zn	%Pb	%Cu	Ag o.p.t.
Zn/Pb					
No. 12 Mine					
Proven	68,970	9.15	3.70	0.30	2.80
Probable	40,167	9.22	3.87	0.36	2.84
No. 6 Mine					
Proven	430	7.47	2.66	0.25	2.58
Copper					
Proven	9,474	1.13	0.40	1.11	0.85
Probable	4,620	1.57	0.54	1.12	1.39

Zinc and lead contained in the concentrate produced from the mine was virtually the same as in 1978, while copper and silver production increased. Although tons mined decreased slightly, this was more than

offset by higher recoveries in the concentrator. Work on the expansion project continued, with the new no. 3 shaft and the surface material handling system operating at half capacity. Capital expenditures on the expansion at year-end were $50 million.

Smelting

PRODUCTION	Pb Tons	Ag Oz	Sulphuric Acid - Tons
1979	62,600	3,097,000	196,000
1978	66,900	3,668,000	185,000
1977	56,400	3,458,000	152,100
1976	51,400	3,004,000	119,300
1975	50,900	2,195,000	139,700

235,000 tons of concentrate were treated.

Hygiene and safety continued to improve. An accident frequency of 2.8 per million manhours worked was the lowest in the history of the plant.

KERR ADDISON MINES (41.2% Direct; 2.3% Indirect)

(LOSS) EARNINGS – $ millions NORANDA'S SHARE	1979	1978
	(17.8)	2.4

PRODUCTION	Interest	Ore Milled Tons (000)	Metal Content in Concentrates
Kerr Addison	100%	193	62,300 Oz. Au
Mogul of Ireland	75%	673	31,100 Tons Zn 14,600 Tons Pb

MINERAL INVENTORY	Tons (000)	GRADE
Kerr	445	0.25 oz. Au o.p.t.
Mogul	2,170	5.56% Zn 2.61% Pb

During 1979 it was determined that uranium extraction rates at the Agnew Lake property could not be increased to economic levels, and the decision was made in September to curtail mining operations and place the property on a salvage basis. This necessitated the write-off of the Company's $59.5 million investment, net of tax credits, in this facility. Partially offsetting this charge against 1979 operations was an after-tax gain of $17.1 million on the sale of one-quarter of the Company's interest in the Canadian Hunter Joint Venture.

The strong demand for gold resulted in improved earnings from the Kerr Addison mine, and allowed the Company to maintain the mineral inventory of gold at the same level which existed at the previous year-end.

PAMOUR PORCUPINE MINES (48.8%)

EARNINGS – $ millions NORANDA'S SHARE	1979	1978
	4.0	2.8

MINERAL INVENTORY	Tons (000)	GRADE Au o.p.t.	Ag o.p.t.	% Cu
No. 1 Mine	1,540	0.092	–	–
No. 3 Mine	202	0.192	–	–
Schumacher				
Copper Section	1,510	0.031	0.08	0.68
Gold Section	248	0.150	–	–
Ross Division	445	0.125	0.22	0.18
Total	3,945	0.081	0.06	0.28

No inventory is included for leased properties.

ORES TREATED	Tons (000)	GRADE Au o.p.t.	Ag o.p.t.	% Cu
No. 1 Mill	936	0.093	–	–
Schumacher Mill	803	0.086	0.100	0.250
Total	1,739	0.090	0.046	0.116

METAL CONTENT OF BULLION AND CONCENTRATE PRODUCED

Au Oz.	Ag Oz.	Cu Tons
139,083	48,349	1,705

The total tonnage of ores drawn from nine different minesites was 261,800 tons less than in 1978 due to replacement of major crushing and grinding equipment in the Schumacher mill and assignment of the more experienced miners to exploration, development and preparation work at the underground minesites. A slightly higher tonnage of lower-grade surface mined material also contributed to a reduction in the overall average grade. Ores were trucked to the two mills over routes that ranged from Matachewan, 110 miles to the east of Timmins, and from the Joburke property, 78 miles to the west.

The first phase of the Ross shaft deepening was completed and the downward extension of the ore was reached. Surface mining continued at the Timmins property, the Romfield and the Hoyle properties and was started at the Matachewan property. Underground development at the Porcupine Peninsular property was stopped for reassessment.

With improved metal prices, proven reserves were increased by 1.43 million tons. The probability for continuation of employment for more than 1,060 people was thus made more certain.

PLACER DEVELOPMENT (33.3% Direct)

EARNINGS – $ millions NORANDA'S SHARE	1979	1978
	25.1	6.7

OPERATIONS	Interest	PRODUCTION Ore Milled Tons (000s)	Metal Content in Concentrate (Tons)
Endako Mines Div.	100%	5,256	2,973 Mo
Gibraltar Mines	71.9%	11,515	40,000 Cu
Marcopper Mining	39.9%	10,164	49,100 Cu
McDermitt Mine	51%	248	1,115 Hg

MINERAL INVENTORY	Tons (000)	Grade
Endako	256,000	0.081% Mo
Equity	30,800	3.10 Ag o.p.t.; 0.384% Cu; 0.028 Au o.p.t.
Gibraltar	243,000	0.36% Cu; 0.008% Mo.
Marcopper		
Tapian	111,000	0.43% Cu
San Antonio	220,000	0.57% Cu
McDermitt	2,170	9.88lbs tonHg

The increase in earnings was due to higher molybdenum and copper prices. Molybdenum production was continued at a reduced rate during the 8½-month strike at Endako Mines and was sold at prices higher than the customary producer price, thus maintaining the mine's revenue near normal.

Construction of the Equity Silver mine commenced with mill throughput expected to reach design capacity of 5,000 tons per day in late 1980.

CRAIGMONT MINES (19.7% Direct; 14% Indirect)

Year Ended October 31

EARNINGS – $ millions NORANDA'S SHARE	1979	1978
	1.9	1.0

ORE MILLED	Tons (000)	Grade % Cu
	2,105	0.95

CONCENTRATE PRODUCED	Tons	Metal Content
	60,400	17,170 Tons Cu

MINERAL INVENTORY	Tons (000)	Grade % Cu
	1,716	1.13

Improved copper prices have resulted in extending the life of the mine into 1981. At approximately 52% dilution some 87% of the mineral inventory may be extracted.

EMPRESA FLUORSPAR (74.8% DIRECT; 14.6% INDIRECT)

EARNINGS – $ millions	1979	1978
NORANDA'S SHARE	1.7	1.6

Acid-grade fluorspar concentrate shipments by 49%-owned Cia Minera Las Cuevas rose to a record 195,000 tons, compared to 87,000 tons in 1978, due to a sharp increase in Mexican chemical industry demand. Shipments of metallurgical spar were also higher at 178,000 tons. Las Cuevas has a 50% interest in a small Mexican hydrofluoric acid plant which commenced production at year-end.

Noranda's direct interest in Empresa Fluorspar was increased to 98.9% following the year-end through acquisition of the shares previously owned by Setentrion.

EMPRESA MINERA DE El SETENTRION (60.5% DIRECT)

EARNINGS (LOSS) – $ millions	1979	1978
NORANDA'S SHARE	(2.1)	1.0

The mine in Nicaragua was seized by Sandinista forces shortly before mid-year and was subsequently nationalized by the new government, which has not yet provided compensation. Noranda's 1979 statements include a corresponding write-off of approximately $2.5 million.

All shareholders of the company received an interim liquidation dividend in February 1980, and will receive a proportionate share of any compensation paid by the Nicaraguan government.

TARA EXPLORATION & DEVELOPMENT (41%)

EARNINGS (LOSS) – $ millions	1979	1978
NORANDA'S SHARE	2.7	(6.5)

Tara Mines (75% owned by Tara Expl.)

ORE TREATED	GRADE	
Tons (000)	% Zn	% Pb
1,808	11.35	2.48

CONCENTRATES PRODUCED	METAL CONTENT	
Tons	Zn Tons	Pb Tons
384,000	178,100	36,700

Production was 19% above 1978 levels but failed to reach designed treatment levels of 2.4 million tons. During the first half of the year, mine productivity was restricted by suspension of production from the pillar area on the boundary with the Bula mine. Mining was resumed during the second half, pending the report of an independent study group which examined production methods in the area. Mine output was also restricted by electrical faults in the production shaft hoisting equipment and by labour problems. Training programs were accelerated for underground personnel to counteract turnover and absenteeism. Concentrator performance continued at satisfactory levels.

LYON LAKE DIVISION

This property remained on a care and maintenance basis until March when rehabilitation of mining and surface equipment was begun and continued throughout the year with the underground crusher and conveyor system completed by year-end. Underground development will continue throughout 1980 and it is planned to commence production at a rate of 1,000 tons per day in July 1980.

MINERAL INVENTORY	GRADE				
Tons (000)	% Zn	% Cu	% Pb	Ag o.p.t.	Au o.p.t.
3,945	6.53	1.24	0.63	3.42	0.01

Diamond drilling, although incomplete, indicated more ore than is included in published reserves. However, complete evaluation and computation of the additional reserves cannot be made until all data are available. Drilling will continue into 1980.

Current Projects and Other Properties

NORTHWEST QUEBEC

MINERAL INVENTORY	Tons (000)	GRADE % Cu	% Zn	Au o.p.t.	Ag o.p.t.
Magusi	1,520	1.0	4.8	0.04	1.0
New Insco	574	2.6			
Les Mines Gallen	1,800		5.4		

No work was done on the Magusi property. The data from earlier partial underground development of the New Insco mine was reviewed; the mineral inventory revised, and production at a rate of 500 tons-per-day is planned for 1982. A similar review of data for Les Mines Gallen resulted in an application for government approval to proceed with development for production at a rate of 350,000 tons per year in mid-1981.

GOLDSTREAM DIVISION

Permission from the government of British Columbia to develop this property is expected in early 1980. The mineral inventory remains at 4 million tons indicated after dilution averaging 3.6% copper and 2.6% zinc.

"F" GROUP MINE

Development of this orebody began in July 1979. Retaining ponds for mine water discharge were partially completed, and 900,000 tons of waste rock and overburden were removed. All work was suspended at the end of November for the winter months but will be resumed in July 1980. Production is scheduled for January 1981.

MINERAL INVENTORY	GRADE			
Tons (000)	% Zn	% Cu	% Pb	Ag o.p.t.
630	8.10	0.98	0.49	1.80

PHELPS DODGE OPTION

Located in northwestern Quebec, not far from Matagami, the property contains a mineral inventory of 1,700,000 tons with grades of 1.1% copper, 4.9% zinc and some silver values. Mining is scheduled to begin in early 1982.

CAMLAREN

The mineral inventory is 40,000 tons with a grade of 0.88 ounces of gold per ton. The property is 55 miles northeast of Yellowknife, N.W.T.

NEW MEXICO POTASH

A review of the 21,000 acres has resulted in the mineral inventory being increased by 50% to 164.9 million drill indicated tons averaging better than 15% K_2O equivalent as sylvite.

HOPEWELL LAND

Following disposal of the Pine Level property in De Soto County, Florida, a well-located 6,560 acre tract of land in Hillsborough County was purchased. This property contains an indicated 10 million tons of recoverable premium grade phosphate rock. Permission to bring this reserve into production by late 1981 is anticipated.

ONTARIO MINE

MINERAL INVENTORY

	Tons (000)	GRADE Ag o.p.t.	% Pb	% Zn
Proven	507	4.7	5.9	8.4
Probable	800	4.8	6.3	6.6

Mine and milling complex rehabilitation was undertaken and production at a rate of 440 tons-per-day should start in the third quarter of 1980. Exploration and planning is underway to outline additional ore and increase production to rated capacity of 750 tons-per-day in 1981.

NORANDA LAKESHORE MINES

MINERAL INVENTORY

	Tons (000)	Grade % Cu
Oxide	22,452	1.19
Sulphide — Tactite	8,891	1.35
— Porphyry	41,025	0.65
Total Sulphide	49,916	0.78

This former Arizona copper producer, located on the Papago Indian Reserve, 85 miles south of Phoenix, was acquired on April 1. A limited program of mine and plant rehabilitation was carried out during the year together with a comprehensive study of operational plans. Acquisition costs and expenses at year-end totalled U.S. $16 million.

A capital expenditure of U.S. $25 million has been approved to bring the oxide mine into production by July 1980 at a treatment rate of 6,000 tons per day. The year-end work force of 113 employees will be expanded to about 560 for the oxide operation.

The sulphide section of the mine, planned for a treatment rate of 10,000 tons a day, will require a further U.S. $42 million capital expenditure. Development of the sulphide operation would not start before 1981 and will be reassessed in the light of improved economic conditions and copper price.

GRAY EAGLE

This property is in the extreme northern part of California. Mineral inventory consists of 1,000,000 tons grading 0.16 ounces of gold and 0.48 ounces of silver per ton. Mining is planned to be at the rate of 700 tons-per-day beginning in mid 1982.

BLACKBIRD MINE

MINERAL INVENTORY

Tons (000)	GRADE % Co	% Cu
3,609	0.73	1.60

Mine development and mill rehabilitation are underway. An exploration program to outline additional ore, mine planning and negotiations with the appropriate government agencies to provide for production of 2,000 tons-per-day are in progress.

An underground mining machine at Central Canada Potash, Colonsay, Sask.

ANDACOLLO

The preliminary engineering stage continued on the Andacollo Project in Chile. Factors such as power, water, surface rights, markets and financing appear sufficiently far advanced to indicate that full-scale design and development of this property is likely to commence in 1980.

Mineral inventory is estimated at 210 million tons with a grade of 0.6% copper. Capital cost is estimated at U.S. $390 million.

ELUMA METALS PROJECT

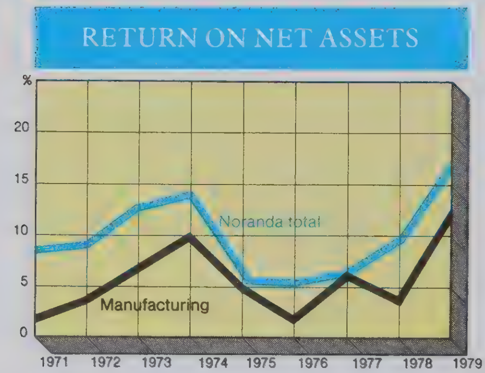
In 1976 Noranda accepted an invitation from Eluma S.A., a diversified Brazilian corporation, to be a joint venture partner in the development of a copper smelter and refinery in southern Brazil. Eluma S.A., through its brass mill and fabricating plants, is a major Brazilian copper consumer. Its other interests include automotive parts and insurance.

The Brazilian government, in accepting the application and awarding Eluma S.A. the right to proceed with the proposed metallurgical complex, has given positive indication of the high priority it holds for this project. The preliminary engineering stage is in progress and top management of both companies are encouraged that the technology, markets and economics do appear viable. Approval of the capital funds for this U.S. $460 million project awaits a final decision by the Brazilian government on financing through the Brazilian National Development Bank.

KOONGARRA

In Australia, the final Environmental Impact Statement for the Koongarra uranium project was filed in November and is under examination by the traditional aboriginal land owners and government departments. The technical aspects and provision for environmental concerns seem to be in order. Approvals from the traditional owners and various authorities are required before starting detailed design and construction. The concept involves open pit mining and annual treatment of 400,000 tons of ore. Ore reserves are 4,736,000 tons averaging 0.305% U_3O_8.

Manufacturing



	Metal Consumption – Tons 1979	1978
Canada Wire	80,170	71,700
Noranda Metal	54,500	56,000

	Product Shipped – Tons 1979	1978
Aluminum Group	220,800*	156,000
Norcast	74,800	97,000
Wire Rope & Bridon	46,000	45,000

*Norandal USA Inc. acquired Jan. 2/79.

The continuing strength of the North American economy in most of 1979 and the 85¢ Canadian dollar combined with the capital expenditures and rationalization efforts of past years to produce a record result for Noranda's manufacturing interests.

In the aggregate, Noranda's share of the total sales of parents, subsidiaries and associates in this group were $1,156 million and produced an operating profit (after taxes and before interest) of $68.1 million, which represents an 11.1% return on net assets. These assets include $19.4 million invested in 1979 in further support of over 5,000 employees in Canada and nearly 10,000 in international interests.

As can be seen, 1979 was a year of relative calm with effort focused mainly on further rationalization, strengthening of balance sheets and personnel development. The year saw the appointment of new Presidents for Canada Wire and Cable and Bridon American as well as the General Manager of the Special Metals Division of Noranda Metal. These last two have been trouble spots so the appointments imply the expectation of significant change.

While not completely serene, the labour scene was quite good throughout the year, underlining the importance of stable production to profits, investment and continued operational strength. Work stoppages occurred in only two plants of the 38 operated and they seemed not to relate specifically to internal company matters.

Inspection of copper tubing at Noranda Metal Industries, Montreal East.

TORONTO GROUP		
$000	1979	1978
Sales	506,000	317,000
Operating Profit	28,300	8,600
Assets Employed	193,000	160,000

Demand for products of **Canada Wire and Cable** remained firm and reliable in most domestic markets served and the exchange shelter offered increased U.S. sales. These latter have increased to 5.5% of the company's total.

Magnet wire business benefited from the Canwirco merger and similar advantages are expected in the field of power and control cables as a result of the acquisition of Fabricon in July. This company has a 130,000 square foot plant in Belleville, Ontario, whose 4,500 ton annual production complements Canada Wire's own production.

The Mexican affiliate, Conductores Monterrey, with an aggressive expansion and diversification program, is now almost as large as Canada Wire itself. Excepting the Venezuelan operation, Iconel, which had production difficulties, other affiliates did well, recovering to earlier profit levels. In Australia, Tycan doubled its capacity through a plant acquisition. The growth of these and the other affiliates is a clear demonstration of the desirability of modest risk investment in a variety of countries with local partnerships.It should also be noted that the Company showed considerable foresight in writing off its Iranian operation in 1978.

Fibre optics operations continued to develop but at a much slower pace than heretofore. The industry is maturing as all participants including Canstar are defining their areas of specialization.

Grandview Industries continued its splendid turnaround, making a most satisfactory contribution to the Company's results. Pipe and fittings markets were solid, and good business was available for foam plastics and what remains of the plastic mixing facilities.

This Company is now embarking on some interesting extensions to its business which will become apparent in 1980.

Of special note was the departure during 1979 of Canada Wire's President, Don Pollock, to the field of public service. This public-spirited man, who did much for the development of Canada Wire, was pressed into service with the Government of Ontario, where he is working on the most critical problem for Canadian industry today – the lack of skilled manpower.

MONTREAL GROUP		
$000	1979	1978
Sales	266,000	230,000
Operating Profit	5,100	3,800
Assets Employed	95,000	119,000

This group has probably the toughest assignment in Noranda – strong import competition, changing market requirements, an oversupplied market and certain facilities limitations. Nevertheless, an aggressive marketing organization has taken advantage of the exchange rate and developed a substantial roster of new accounts for products that the facilities of **Noranda Metal Industries** serve particularly well.

Considerable attention has been paid to industry comparative analysis and plant capabilities. The company's new plan for further rationalization and product specialty will result in tube operations being expanded at Montreal East and to some extent at New Westminster, with assistance from the nuclear tube mill at Arnprior. Sheet rolling operations will be concentrated in Fergus.

The Special Metals facility for nuclear tube is beginning to realize some of its production potential. It does so at a difficult time in light of the general uncertainties in the field of nuclear power generation.

Norcast, the company's foundry division, saw its principal customers struck for six months and its molybdenum requirement priced at a level that made its new marmet alloy impossible to sell. Notwithstanding, the division produced a reasonable profit, fortified by the results of its Cyclomet secondary metal facility.

The wire rope companies continued their previous record of strong earnings in Canada and marginal operations in the U.S. **Wire Rope Industries** (51.4%) operates in a very mature Canadian market and will do well to maintain its present market share and profitability. On the other hand, **Bridon American** (49%) should be able to substantially improve its hitherto negative results providing their U.S. market share can be increased.

CLEVELAND GROUP		
$000	1979	1978
Sales	384,000	254,000
Operating Profit	34,700	10,100
Assets Employed	322,000	353,000
	Tons	Tons
Primary Aluminum Production	143,200	109,600

The year was stable and quite profitable for **Noranda Aluminum** which completed its integration on January 2 when it acquired sheet rolling facilities in Tennessee.

The market was very tight throughout the year permitting an overall 18% increase in the pricing of 99.5% purity ingot. However, this tightness also pressed the scrap market, eliminating the margins for those who rely on this source. Thus, while Noral's smelter did very well, the rolling mill suffered.

Overall shipments by the group of 442 million lbs. compared with 312 million lbs. in 1978. Profits were the highest on record at $35 million, which compares with the assets employed of $322 million.

Noral developed the background material necessary for consideration of a third potline and also carefully examined two primary production acquisition possibilities. Its principal physical change was a project to control dust emissions.

Norandex had a relatively satisfactory year, particularly enjoying a strong position in siding markets. Nevertheless, the company's distribution facilities remain underutilized, as are its extrusion machines. Norandex will be severely challenged to meet its profit targets in 1980 in face of the slump in demand for building products.

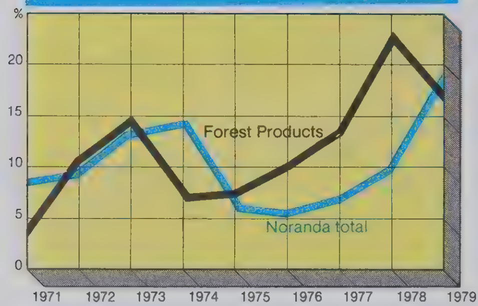
Norandal performed well physically in its first year under the new banner, even though scrap prices impaired its profitability.

Altogether, the Noranda Aluminum enterprise can be said to be well found and to have a good future in an industry where the growth rate of demand is currently double the growth rate of supply.

High voltage electrical cable from Canada Wire being installed at a customer's plant in Oshawa, Ontario.

Forest Products

RETURN ON NET ASSETS



It was generally believed that the 1978 profit record of the Canadian forest industry would stand for some time. Happily, it did not and Noranda enjoyed another record year, mainly due to an 85¢ Canadian dollar, continuing strong lumber markets until late summer and nearly strike-free operations throughout the year.

Up to the last months of 1979, our companies could sell all their production at good prices and pulp and paper were in near shortage in some of our main grades. The market for lumber and panel products turned soft after the summer due to declining housing demands.

Noranda's forest interests aggregated $1,489.3 million of sales which produced $161.8 million of net profit on the $1,104.4 million of assets employed in their business. To the total cash flow of $241.1 million, another $44.7 million of borrowings were added to pay for the $136.1 million capital expenditures, $74.4 million for operating working capital and investment of $47.2 million. These support the activities of over 15,000 employees in Canada and 2,500 in the U.S.

Noranda's beneficial interest amounts to $655.5 million sales and $63.9 million net profits (before borrowing costs) of which $8.8 million was received in dividends, all compared to total investment by Noranda of $265.7 million.

PRODUCTION

	Lumber (MMfbm)	Market Pulp (000 tons)	Paper Products* (000 tons)
Total	1,482.1	836.6	1,021.8
Noranda's interest	573.9	315.2	404.3

* includes Blandin's coated paper

FINANCIAL

	1979	1978
	($ millions)	
100% BASIS		
Sales	1,489.3	1,304.3
Assets Employed	1,104.4	887.7
NORANDA'S SHARE*		
Sales	655.5	588.5
Operating Profit	63.9	61.7
Assets Employed	455.3	353.0

* includes proportionate share of companies not wholly owned.

NORTHWOOD MILLS

EARNINGS – $ millions

	1979	1978
NORANDA'S SHARE	6.6	18.2

SALES

	Nwd. Mills Lumber Mfbm	Nwd. Building Lumber Mfbm	Nwd. Building Panelboard MSM 1/16"
1979	669,000	234,000	811,000
1978	749,000	262,000	811,000
1977	775,000	245,000	856,000
1976	711,000	284,000	1,039,000
1975	367,000	410,000	1,197,000

This company served two main purposes in 1979 – an investment holding company and a sales-marketing operation. It is likely that the holding vehicle will become more prominent in time.

The Sales and Marketing activities had an exceptionally good year, even though handling a somewhat reduced volume. As intended, their share of the Japanese market was developed to more than double the previous levels and penetration of the new markets in Italy and Spain was increased.

Northwood has a new product in waferboard. A strong customer list was developed during a carefully planned marketing program and this has helped to offset the currently poor demand for panel products.

The Building Materials division completed a new warehouse in Quebec City, expanded its Vancouver operation and upgraded facilities in both Calgary and Edmonton. This division serves as an increasingly important outlet for products of the Group, although its performance has not yet fully met expectation.

FRASER

EARNINGS – $ millions

	1979	1978
NORANDA'S SHARE	15.6	12.7

PRODUCTION

	Lumber Mfbm	Pulp Tons	Paper Tons	Boxboard Tons
1979	94,600	94,500	401,600	30,700
1978	90,200	93,400	395,400	30,500
1977	67,700	83,000	385,100	31,500
1976	64,700	74,100	375,800	32,600
1975	42,900	53,700	301,000	30,300

Another record year was recorded by Fraser, helped by the devalued Canadian dollar, tight markets and the successful completion of its Edmundston rebuild. Earnings of $27.4 million or $3.88 per share compared with $3.20 in 1978 and permitted total dividends of $7.1 million or $1.00 per share. These were attained even though some $90 million of new assets made no contribution to earnings in the first half-year. These assets are now in operation and full production is nearly achieved. All the proposed benefits — more pulp of a better quality at a lesser cost with acceptable effluent – are as planned. In fact they are enhanced by greater savings in fuel costs than originally thought due to oil price increases. In effect, the project gives Fraser a new pulp mill at one-third of greenfield costs.

At the Madawaska paper operations, the $41 million program to convert the no. 7 machine to permit either ground-wood or bond production, major speed-ups on two paper machines and the addition of one on-machine coater and one off-machine coater will be completed in March 1980. The product specialty and versatility offered by these changes should permit Fraser to maintain its sold-out condition during 1980.

Lumber production reached record

levels in excellent markets and made a contribution to profits which may be difficult to repeat in the near term. A three-year program to modernize boxboard facilities is under way for a total expected investment of $7 million. Final plans are in hand for the conversion and upgrading of the Atholville pulp mill. Economics for this project improve as energy costs rise and there is prospect of significant grants under the Federal-Provincial Pulp and Paper Modernization Program.

Once the boxboard and Atholville projects are well established, Fraser will have the base necessary for looking outwards to other areas. Its present assets are modern and cost-competitive, secured by an excellent timber base fortified by the second largest private tree nursery in Canada.

NORTHWOOD PULP AND TIMBER (50%)

EARNINGS – $ millions

NORANDA'S SHARE	1979	1978
	14.8	11.3

PRODUCTION

	Lumber MMfbm	Pulp Tons (000)	Chips B.D.U.	Waferboard MSF 1/16"
1979	593	244	338,000	401,000
1978	548	241	318,000	–
1977	554	205	332,000	–
1976	512	231	334,000	–
1975	235	169	156,000	–

In concert with its industry, Northwood achieved a record level of net profits of $31 million. Foreign exchange advantages contributed over half the profit and the rest was due to excellent, uninterrupted effort by the employees, extraordinarily strong lumber markets and tight pulp markets. In addition, the company successfully completed the conversion of its Chatham, N.B., plant to waferboard production. This project attained or exceeded all its targets and encouraged construction of a second plant in Bemidji, Minnesota.

Northwood is in an extremely strong financial position thanks to the excellent profits of the last three years and the fact that all the earnings have been left in the business. This has permitted the Company to approve and commence a project to double its pulp production capacity. The project is actually the second stage of the original pulp mill plan but, at $300 million, costs will be nearly six times higher than the original mill. There is no clearer example of the inflation of the last dozen years nor better justification of the apparently high profits in the forest industry today. Even total reinvestment of present high earnings is scarcely enough to launch this huge project. However, although the risks are great, they are outweighed by the promise.

BRITISH COLUMBIA FOREST PRODUCTS (28.4%)

EARNINGS – $ millions

NORANDA'S SHARE	1979	1978
	27.0	19.5

PRODUCTION

	Lumber MMfbm	Pulp (000) Tons	Newsprint (000) Tons	Plywood MMSM 1/16"	Blandin Paper (000) Tons	Blandin Waferboard (000) Tons
1979	795	498	282	1,232	308	42
1978	835	494	279	1,279	300	53
1977	812	421	257	1,203	102	20
1976	721	480	252	1,141	–	–
1975	434	356	193	802	–	–

BCFP earnings of $96 million or $6.35 per share permitted dividends of $1.15 per share compared with 60.5¢ in 1978. These outstanding earnings reflect the company's commitment to new investment in carefully selected product areas over the last several years. They also represent the benefits of the Canadian dollar exchange which contributed about 43%.

As well as the normal maintenance capital expenditure program, the Company completed the kraft mill at St. Felicien, Quebec, of which it now owns 45%. This huge project was finished within budget, and started without a tremor enabling it to contribute profit after three months of operation. Undoubtedly such excellent performance was a major factor in the recent award by the Alberta Government to BCFP of sufficient timber to support 180 MMfbm of lumber and 150,000 tons of newsprint production from a project to be completed by 1985.

BCFP also undertook the largest single direct project in its history, a third newsprint machine at Crofton. This machine will cost $180 million including interest and working capital and should be completed in 1982. It was made possible by the acquisition of 42.7% of Finlay Forest Industries and related sawtimber operations, all of which will provide groundwood fibre.

Paper production at Fraser Paper Inc., Madawaska, Maine, U.S.A.

Research and Environment Control

Revegetation on tailings at Waite Amulet property, just north of Noranda, Quebec.

RESEARCH

Over the years, the Noranda Research Centre has developed new instruments for process monitoring in Noranda Group operations. This year, the Magnograph Wire Rope Tester, a particle size analyzer and a toxic gas monitor were licensed for manufacture and sale by others.

The hydrometallurgy group at the Centre conducted metallurgical studies in support of new mine projects. A process was tested for the treatment of the Australian Koongarra uranium ore. A major effort was initiated to devise a process that would minimize the environmental and industrial hygiene hazards in the production of cobalt from the arsenical concentrate from the Blackbird property in Idaho.

The project to develop large-scale electrolytic hydrogen cells has passed through the design stage and fabrication of a prototype is underway. The improvements in efficiency of hydrogen production, indicated by laboratory results, have now been confirmed in commercial equipment.

At year-end, 137 people, of whom 59 are professionals, were employed at the Centre. Total spending was $4.6 million.

ENVIRONMENT CONTROL

As part of Noranda's ongoing program of revegetation, growth room studies were conducted by the University of Guelph on tailings samples from various operating locations. The best additives and seed mixtures as indicated by the research data are now being used in the field.

The Horne Division's revegetation research program initiated in 1974 at the Crop Science Department of the University of Guelph expired at year-end. However, growth room testing will be continued as required by a private company.

A new water treatment plant was constructed at the No. 6 mine of Brunswick Mining and Smelting to treat the water leaching out of the waste piles in the upper Knight Brook drainage basin. Effluent reduction systems and water diversion channels were installed at a number of operating locations.

Emissions of particulate matter from the selenium plant at Canadian Copper Refiners in Montreal East were reduced considerably by the installation of two wet electrostatic precipitators in series with the two existing venturi scrubbers. The refurbishing at the Horne Division has improved the dust collection efficiency of the unit. Further progress is expected.

Continued work in the field of noise abatement and the implementation of a number of major ventilation projects has resulted in better working environments.

Preoperational studies and environmental impact statements were prepared for a number of properties in Canada, the U.S.A., Brazil and Australia. The data from this work have become an integral part of the applications for securing operating permits from the authorities concerned.

Capital expenditures for emission and effluent control, including acid plants have exceeded $148 million since 1971.

Effects of Inflation

The erosion of corporate financial strength due to inflation is very real, but the measurement of that erosion is difficult.

A committee appointed by the Ontario government in 1977 recommended an approach that attempts to show the effect of inflation on funds generated by a business. Application of this method to Noranda's 1979 results, using a Statistics Canada business index, produces the following statement.

Funds generated from operations (total from statement of changes in financial position)		$ 606,000,000
From this, deduct the funds required to finance original cost of productive assets (historical cost depreciation)		$ 97,000,000
Leaves: amount available, on an historical accounting basis, for distribution to shareholders or for expansion		509,000,000
But to take account of the increased cost of maintaining operating capacity in our inflationary environment the following allocations of funds should also be deducted:		
To replace inventories at higher prices	37,000,000	
For plant, machinery and equipment at higher prices	80,000,000	
	117,000,000	
Less additional funds which may be available from borrowing if present debt-equity ratio is maintained	44,000,000	73,000,000
Leaves: funds hypothetically available from the year's operations for distribution to shareholders or investment in expansion of facilities		$436,000,000

This statement suggests that, of the $606 million generated in 1979, $214 million ($97 million plus $117 million) should have been spent to maintain the business, given the level of inflation Canada has been experiencing, of which $44 million could be borrowed. This would have left $436 million to distribute to shareholders or to spend on growth, assuming no change in the existing debt-equity ratio.

What in fact happened in 1979 was the spending of some $324 million (net) on plant and working capital to maintain the business, $336 million in expansion of facilities and $100 million to pay dividends to shareholders. $154 million of outside capital had to be raised to help pay for these expenditures.

Thus, by this measure, Noranda invested the notional requirement of $214 million needed to maintain the business and spent an additional $110 million as a partial make-up for under-expenditures in prior low business cycle years. The debt to equity ratio was improved by the issue of shares and as a result of actual borrowings being less than the $44 million shown in the above statement.

It must be emphasized that this statement is intended to provide perspective and involves many statistical estimates. There is also concern that it may understate the full impact of inflation since the Statistics Canada index used does not fully reflect the escalation that has taken place in the replacement cost of fixed assets.

It should also be noted that the $73 million figure shown in the statement could be interpreted as indicating the approximate amount by which Noranda's 1979 earnings were overstated due to the ravages of inflation. Earnings are taxed without adequate recognition being given to this overstatement.

Computer terminal operation. One of many technologies in use by the Noranda Group to help control costs.

Accounting Policies

BASIS OF PRESENTATION OF FINANCIAL STATEMENTS

The accompanying financial statements are prepared in accordance with accounting principles generally accepted in Canada and include, on a consolidated basis, the accounts of Noranda Mines Limited (the Company) and all of its subsidiaries. The Company together with its subsidiaries is referred to as Noranda. Noranda's interests in associated companies in which it has significant influence but not majority share ownership are accounted for on the basis of cost plus Noranda's equity in undistributed earnings of such companies since the dates of investment. The difference between the cost of the shares of associated companies and the underlying net book value of the assets is amortized over the life of the assets to which the difference is attributed. Other long-term investments are carried at cost less any amounts written off.

Certain subsidiary and associated companies own shares in the Company. The Company's pro rata interest in the carrying value of such shares has been deducted from shareholders' equity. Similarly, the Company's earnings per share have been calculated on the number of shares outstanding after reduction for such intercompany holdings.

TRANSLATION OF FOREIGN CURRENCIES

Foreign currency assets and liabilities of the Company and its subsidiaries and associated companies are translated into Canadian dollars as follows: working capital at exchange rates prevailing at the end of the period; fixed and other long-term assets, long-term debt, and depreciation provisions on the basis of historic rates of exchange; revenues and expenses (other than depreciation) at average rates during the period. Exchange translation gains and losses from these procedures are included in consolidated earnings.

INVENTORIES

Mine products are valued at estimated realizable value and other inventories at the lower of cost and market.

FUTURES CONTRACTS

From time to time, the Company owns futures contracts for the purchase or sale of metals and currencies not related to production. These contracts are not reflected in the Company's accounts, beyond the amount of deposit required, until maturity date although provision is made for any estimated unrealized losses.

DEPRECIATION AND DEVELOPMENT CHARGES

Depreciation of property, buildings and equipment and amortization of development expenditures are based on the estimated service lives of the assets calculated using the method appropriate in the circumstances, for the most part straight-line for fixed assets and unit of production for development. Assets held under capital leases are generally amortized over the terms of the respective leases and the amortization amounts are included in depreciation.

EXPLORATION

Mineral and petroleum exploration expenditures are charged against current earnings, unless they relate to properties from which a productive result is reasonably certain or on which work is in process. Gains on sale or recoveries of costs previously written off are normally credited against exploration expense.

INCOME TAXES

Under the income tax laws, some costs and revenues are included in taxable income in years which are earlier or later than those in which they are included in income reported in the financial statements. As a result of these timing differences, income taxes currently payable normally differ from the provisions for taxes charged to earnings. The differences are shown in the consolidated balance sheet as "Taxes provided not currently payable".

Potential tax savings arising from losses incurred and investment tax credits are not reflected in earnings in the year they arise unless they are virtually certain to be realized.

INTEREST

Generally interest expense is accrued and charged against income except interest that can be identified with a major capital expenditure program. Such interest is capitalized during the construction period.

START-UP COSTS

Start-up costs on major projects are deferred until the facility achieves commercial production volumes. These deferred costs are written off over a reasonable period on either a straight-line or a unit of production basis.

CAPITAL LEASES

The Company and its subsidiaries lease certain property, buildings and equipment under long-term capital leases which are recorded in the financial statements as fixed assets and long-term debt.

PENSION COSTS

The Company and its subsidiaries have various contributory pension plans which cover substantially all of the employees. Current service pension costs are charged to earnings and funded as they accrue. Past service costs are charged to earnings and funded at rates which, based on annual independent actuarial estimates, will fully provide for the obligations over periods not longer than those permitted by various regulatory bodies.

Consolidated Statements of Earnings And Retained Earnings

FOR THE YEARS ENDED DECEMBER 31

EARNINGS	1979	1978
	(in thousands)	
Revenue		
Metals, products, custom tolls and other	**$ 2,484,690**	$ 1,691,094
Expense		
Cost of metal production and products sold	**1,520,455**	1,211,309
Administration, selling and general expenses	**126,037**	101,157
Depreciation ($89,073,000; 1978 — $78,279,000) and development charges	**96,699**	82,063
Exploration written off	**67,612**	31,459
Interest — net (including long-term debt interest of $60,758,000; 1978 — $45,646,000)	**65,259**	64,842
	1,876,062	1,490,830
	608,628	200,264
Income and production taxes	**227,045**	90,501
Minority interest in earnings of subsidiaries	**57,163**	24,783
	284,208	115,284
Earnings of Noranda and subsidiary companies	**324,420**	84,980
Share of earnings in associated companies (note 2)	**85,775**	49,293
	410,195	134,273
Unusual items (note 12)	**(15,686)**	901
Earnings	**$ 394,509**	$ 135,174
Earnings per share	**$ 4.70**	$ 1.91

RETAINED EARNINGS	1979	1978
	(in thousands)	
Balance, beginning of year	**$ 789,840**	$ 685,373
Earnings	**394,509**	135,174
	1,184,349	820,547
Dividends paid (note 7(c))	**70,839**	30,707
Balance, end of year	**$ 1,113,510**	$ 789,840

(See accompanying notes)

Consolidated Balance Sheet

DECEMBER 31

NORANDA MINES LIMITED (Incorporated under the laws of Ontario) and its consolidated subsidiaries

ASSETS	1979	1978
	(in thousands)	
Current assets		
Cash and short-term commercial notes	**$ 10,033**	$ 1,823
Marketable investments, at cost less amounts written off (quoted market value $20,027,000; 1978 — $17,143,000)	**15,370**	15,829
Accounts, advances and tolls receivable	**702,902**	399,045
Inventories	**760,488**	466,009
	1,488,793	882,706
Investment in and advances to associated and other companies (note 2)	**406,089**	410,029
Fixed assets		
Property, buildings and equipment, at cost	**2,158,502**	1,703,027
Accumulated depreciation	**(922,472)**	(744,194)
	1,236,030	958,833
Other assets (note 4)	**189,298**	123,280
	$ 3,320,210	$ 2,374,848

(See accompanying notes)

AUDITORS' REPORT

To the Shareholders of
Noranda Mines Limited

We have examined the consolidated balance sheet of Noranda Mines Limited as at December 31, 1979 and the consolidated statements of earnings, retained earnings and changes in financial position for the year then ended. Our examination of the financial statments of Noranda Mines Limited and those subsidiaries and associated companies of which we are the auditors was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances. We have relied

LIABILITIES	1979	1978
	(in thousands)	
Current liabilities		
Bank advances (note 5(c))	**$ 170,334**	$ 133,578
Accounts payable	**459,741**	336,666
Taxes payable	**126,118**	65,801
Debt due within one year (note 5)	**45,237**	65,089
	801,430	601,134
Deferred liabilities and revenues	**29,897**	34,338
Taxes provided not currently payable	**229,189**	99,984
Long-term debt (note 5)	**602,483**	604,086
Minority interest in subsidiaries	**193,961**	150,932
Shareholders' equity		
Capital stock (note 7)	**512,301**	109,005
Retained earnings	**1,113,510**	789,840
	1,625,811	898,845
Less the company's pro rata interest in its shares held by subsidiary and associated companies	**(162,561)**	(14,471)
	1,463,250	884,374
	$ 3,320,210	$ 2,374,848

On behalf of the Board,
A. POWIS, Director
W. P. WILDER, Director

on the reports of the auditors who examined the financial statements of the other subsidiaries and associated companies.

In our opinion, these consolidated financial statements present fairly the financial position of the company as at December 31, 1979 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Clarkson Gordon
Chartered Accountants

Toronto, Canada, February 18, 1980

Consolidated Statement of Changes in Financial Position
FOR THE YEARS ENDED DECEMBER 31

	1979	1978
	(in thousands)	
Working capital, beginning of year	$ 281,572	$ 167,330
Source of Funds		
Operations —		
Earnings	394,509	135,174
Depreciation and development charges	96,699	82,063
Taxes provided not currently payable	112,348	13,075
Minority interest in earnings of subsidiaries	57,163	24,783
Share of earnings less dividends of associated companies	(54,834)	(36,786)
	605,885	218,309
Acquisition of Orchan Mines Limited	—	12,407
Working capital acquired through Mattagami merger (note 3(a))	69,721	—
Sale of Northwood Properties Limited	—	7,334
Issue of shares (net)	139,011	4,256
Investments and advances	2,099	2,113
Long-term financing	72,327	35,244
Fixed asset disposals and adjustments	12,124	5,478
Increase (decrease) in deferred liabilities and revenues	(4,140)	10,208
	897,027	295,349
Application of Funds		
Fixed assets	284,887	115,083
Deferred development, exploration and other expenditures	34,597	9,135
Dividends paid to — shareholders	70,839	30,707
— minority shareholders of subsidiaries	29,203	6,143
Current maturities of long-term debt	71,710	20,039
	491,236	181,107
Net increase in working capital	405,791	114,242
Working capital, end of year	$ 687,363	$ 281,572

(See accompanying notes)

Notes to Consolidated Financial Statements
DECEMBER 31, 1979

1. ACCOUNTING POLICIES

The principal accounting policies followed by Noranda Mines Limited and its subsidiaries are summarized under the caption "Accounting Policies".

2. INVESTMENTS

(a) Investments in and advances to associated and other companies consist of:

	Noranda's Direct Interest	Carrying Value December 1979	1978
		(in thousands)	
Investments carried on an equity basis —			
British Columbia Forest Products Limited	28%	$ 91,167	$ 69,082
Craigmont Mines Limited	20%	3,984	3,842
Kerr Addison Mines Limited	41%	141	27,444
Mattagami Lake Mines Limited (note 3(a))		—	43,257
Northwood Forest Industries Limited	50%	66,231	50,707
Pamour Porcupine Mines, Limited	49%	6,685	3,651
Placer Development Limited	33%	53,286	71,147
Tara Exploration and Development Company Limited (note 2(c))	41%	51,553	46,986
Frialco/Friguia Guinean Consortium	20%	18,248	19,492
Frenswick Holdings Limited investment in Zinor Holdings Limited		34,400	—
Other companies		63,528	51,842
		389,223	387,450
Other Investments and advances —			
Shares, at cost less amounts written off		13,290	11,055
Advances & other indebtedness (note 2(c))		3,576	11,524
		$406,089	$410,029

(b) Included above are shares carried at a book value of $213,517,000 which had a quoted market value of $471,707,000 at December 31, 1979 ($276,040,000 and $367,377,000, respectively, at December 31, 1978). The latter amount does not necessarily represent the value of these holdings, which may be more or less than that indicated by market quotations.

(c) $2,016,000 of advances and other indebtedness at December 31, 1979 was secured by shares of Tara Exploration and Development Company Limited.

3. SIGNIFICANT ACQUISITIONS

(a) Under a merger proposal approved by shareholders of both companies the Company acquired on January 2, 1979, the assets and business of Mattagami Mines Limited in return for the issue of special shares of the Company to Mattagami. The Company's subsequent offer to Mattagami shareholders to exchange one Noranda share for each two and one-quarter Mattagami shares held was accepted and the Company redeemed the special shares in exchange for the issue of $206,204,000 principal amount of a newly created debenture of the Company convertible into Class A shares of the Company at $35 per share. These debentures were immediately converted and the resulting Noranda shares received by Mattagami were distributed to its shareholders with the effect that each Mattagami shareholder received one Noranda share (before giving effect to the three for one stock split, note 7(b)) for each two and one-quarter shares of Mattagami held. Noranda shares issued to the Company as a shareholder of Mattagami were cancelled.

The effect of these transactions was that the Company issued 3,884,393 shares (before giving effect to the three for one stock split, note 7(b)) of the Company in exchange for the shares of Mattagami not already owned for a total consideration of $135,953,755. Because shares of Mattagami were held by subsidiary and associated companies, the Company's pro rata interest in its own shares held by those companies increased by 558,471 shares, resulting in net consideration of $116,195,000.

This transaction is summarized below:

	(in thousands)
Net assets acquired:	
Non-current assets —	
Fixed — including increases to fair value of $57,008,000	$104,882
Other	32,453
	137,335
Long-term liabilities	29,350
Non-current assets (net)	107,985
Working capital	69,721
Total net assets acquired	177,706
Less investments in and advances to Mattagami prior to acquisition	61,511
Capital stock issued (net)	$116,195

The results of operations of Mattagami for 1979 are included in the consolidated results of the Company. Prior to 1979, the Company's pro rata interest in the operations of Mattagami had been included in consolidated operations on the equity basis of accounting.

(b) Purchase of Aluminum Casting, Sheet and Foil Plant:

Noranda Aluminum purchased an aluminum casting, sheet and foil plant in Huntingdon, Tennessee on January 2, 1979, for a price of approximately $40 million U.S. including working capital.

(c) Purchase of Heath Steele Mines Limited:

On October 1, 1979 the Company acquired all the outstanding shares of Heath Steele Mines Limited and two groups of claims in the Sturgeon Lake Area of Ontario in exchange for all the outstanding shares of Noranda Phosphate Inc. This transaction was accounted for as a non-monetary exchange of mining properties and the carrying value of the phosphate properties was attributed to the investment in Heath Steele.

(d) Purchase of Granisle mine:

On November 30, 1979 the Company purchased the Granisle mine of Zapata Granby Corporation for $32,000,000 plus working capital.

4. OTHER ASSETS

	1979	1978
	(in thousands)	
Deferred development and start-up costs	$150,402	$ 90,952
Deferred exploration expenditures	20,982	16,161
Other deferred assets	12,650	9,805
Debenture and revenue bond discount and financing expenses, at cost less amortization	5,264	6,362
	$189,298	$123,280

5. DEBT

(a) Long-term debt:

	1979	1978
(i) **Bonds, debentures, notes**	*(in thousands)*	
Noranda Mines Limited		
9¾% notes due July 15, 1982	$ 25,000	$ 25,000
9¾% notes due November 1, 1980	25,398*	25,398*
9¾% sinking fund debentures May 1, 1994	42,300	46,950
7½% sinking fund debentures October 1, 1988	21,751	23,668
9¼% sinking fund debentures October 15, 1990	33,548	35,659
Norandex		
5½%-9¼% mortgage notes payable in monthly instalments to 1990 — ($5,894,000 U.S.; 1978 — $6,485,000 U.S.)	6,274	6,974
Brunswick Mining and Smelting Corporation Limited		
5.85% first mortgage sinking fund bonds, series "A" maturing April 1, 1986	7,254	8,662
7.25% general mortgage sinking fund bonds, series "A" maturing August 15, 1987	6,040	8,486
11% general mortgage sinking fund bonds, series "B" maturing December 1, 1996	17,434	35,000
Fraser Inc.		
6⅛% sinking fund debentures due April 1, 1987 — ($6,000,000 U.S.; 1978 — $6,750,000 U.S.)	6,545	7,369
10¾% sinking fund debentures due June 1, 1992 — ($35,000,000 U.S.)	35,612	35,612
Notes payable	42,600	—
Sundry Indebtedness	9,993	8,319
	279,749	267,097
(ii) **Obligations under capital leases**		
Noranda Aluminum Inc.		
10½% secured notes due October 1, 1995 ($75,600,000 U.S.; 1978 — $80,000,000 U.S.)	76,885	81,360
5.20% to 5.90% industrial revenue bonds, serial and sinking fund issues, maturing November 1, 1979 to 1993 ($64,800,000 U.S.; 1978 — $68,500,000 U.S.)	69,824	72,983
8% pollution control revenue bonds due April 1, 2001 ($10,500,000 U.S.)	10,315	10,315
9.75% note due January 10, 1987 ($30,000,000 U.S.)	35,229	35,229
9.75% note due 1985 ($20,000,000 U.S.)	23,400	—
Other leases	7,100	—
	222,753	199,887
Other Debt:		
Notes payable (note 5(b))	145,218	202,191
	647,720	669,175
Debt due within one year	45,237	65,089
Long-term debt	$602,483	$604,086

* Includes $15,000,000 U.S.

Maturities of long-term debt are as follows:
1981 — $15,180,000; 1982 — $191,416,000;
1983 — $29,573,000; and subsequent $366,314,000.

(b) $145,218,000 of notes payable, representing promissory notes with maturities from January to February 1980, have been classified as long-term debt to the extent of the unconditional commitment the Company has received from its bankers for contractual term credits expiring December 31, 1982.

(c) Shares of Frenswick Holdings Limited held by certain subsidiaries have been pledged as collateral for bank demand loans of $102,435,000 to those companies.

6. COMMITMENTS AND CONTINGENT LIABILITIES

(a) Approved capital projects and financing commitments outstanding total approximately $260,000,000 at December 31, 1979.

(b) The Company and its subsidiaries have guaranteed or are contingently liable for repayment of loans of associated and other companies to the extent of approximately $29,000,000 at December 31, 1979.

(c) As at December 31, 1979 some of Noranda's pension plans are overfunded and some are underfunded. The total unfunded obligation is estimated at $23,000,000 of which $6,000,000 arises in Canada and will be funded and absorbed against income through annual instalments not exceeding $670,000 over periods up to 15 years. $17,000,000 of the unfunded obligations relate to U.S. subsidiaries and will be amortized over periods up to forty years in annual instalments not exceeding $500,000.

(d) During the latter months of 1979 the Company and certain subsidiaries entered into contracts at an approximate average price of $19 (U.S.) per ounce for the sale of 7.4 million ounces of silver to be produced in 1980.

(e) The Company is one of twenty-nine defendants, described as uranium producers and located in various countries, to a private antitrust action instituted by Westinghouse Electric Corporation in the United States District Court alleging the existence of a conspiracy among such producers to restrain interstate and foreign commerce in uranium. A second action alleging the existence of the same conspiracy has been brought against the company and seven other defendants by the Tennessee Valley Authority. It is expected that the damages ultimately claimed by the plaintiffs will be substantial.

The Company and three associated companies are among fourteen defendants in an action instituted in the Superior Court of the Province of Quebec by various groups of and individual Cree Indians for damages of $8,034,000 and injunctive relief in respect of alleged environmental contamination and other interference with alleged territorial rights of the Cree Indians in Northern Quebec.

The Company is defending these actions and believes it has good defences on the merits.

7. SHAREHOLDERS' EQUITY

(a) Authorized Capital:

At a meeting of shareholders held April 27, 1979 the outstanding Class A and Class B shares were re-classified as common shares without par value. As a result the authorized capital consists of 120,000,000 shares of no par value.

On December 27, 1978 22,000,000 non voting special shares with a par value of $1 per share each redeemable at $10 per share were created for use in connection with the Mattagami merger. These shares were subsequently issued, redeemed and cancelled.

(b) The earnings per share for 1978 and the number of shares and dividends for periods prior to August 16, 1979 have been restated, unless otherwise indicated, to reflect a 3 for 1 share split approved by shareholders on August 16, 1979.

(c) The issued capital stock is summarized below:

	December 31 1979	December 31 1978
	(shares)	
Common shares issued and outstanding	101,536,449	75,517,632
Company's pro rata interest in its shares held by subsidiary and associated companies	11,247,062	2,852,054
Net shares	90,289,387	72,665,578
During the year the following dividends were declared:		
Common — $.68/share (1978 — $.43/share)	$ 60,790,000	—
Class A — $.17/share (1978 — $.43/share)	11,725,000	$ 29,173,000
Class B — $.17/share (1978 — $.43/share)	871,000	2,681,000
Total	73,386,000	31,854,000
Less the Company's pro rata share of dividends paid to subsidiary and associated companies	2,547,000	1,147,000
Net charge to retained earnings	$ 70,839,000	$ 30,707,000

The following table summarizes the shares issued during the year:

	1979	1978
Total issued at beginning of year	75,517,632	73,393,533
Issued under stock option plan (note 7(f)(i))	216,740	67,470
Issued under share purchase plan	—	424,200
Issued on amalgamation with Orchan	—	1,632,429
Issued on merger with Mattagami (note 3(a))	11,653,179	—
Issued as stock dividends (note 7(d))	148,898	—
Issued to Zinor (note 7(e))	14,000,000	—
Total issued at end of year	101,536,449	75,517,632

The earnings per share calculations have been based on the weighted average number of shares outstanding, 83,865,396 in 1979 and 70,939,944 in 1978.

(d) Shareholders have the right to receive either cash dividends or the equivalent in common stock. Under an exemption order of the Ontario Securities Commission the Company may purchase for cancellation on an annual basis through the facilities of the Toronto Stock Exchange a number of common shares approximately corresponding in number to the common shares issued by it as stock dividends, subject to certain conditions. During 1979 148,898 shares (reflecting the 3 for 1 split) were issued as stock dividends and no shares were purchased for cancellation.

(e) Sale of shares:

On November 16, 1979 a private sale of 14 million treasury shares of the Company was completed at $19 per share for a total cash consideration of $266,000,000.

The purchaser of the shares was Zinor Holdings Limited (Zinor), a company owned by Kerr Addison Mines Limited, Placer Development Limited and Frenswick Holdings Limited (Frenswick). Frenswick is owned by Brenda Mines Limited, Brunswick Mining and Smelting Corporation Limited and Fraser Inc. In addition to the purchased shares, Zinor also acquired shares of the Company held by Kerr Addison Mines Limited and Placer Development Limited and as a result owns 23,980,202 (23.617%) of the Company's outstanding shares.

(f) (i) During the year ended December 31, 1979, 216,740 shares in the Company's capital stock were issued under the Company's stock option plan for $1,862,430 and no shares were issued under the company's share purchase plan.

(ii) No options were granted under the provisions of the stock option plan during the year ended December 31, 1979. Options on 11,955 shares were cancelled.

At December 31, 1979 options on 266,860 shares were outstanding exercisable at prices varying from $8.34 to $9.50 for periods up to 1986.

(g) Under the Company's share purchase plan, shares are sold to a trustee for resale to employees financed by an interest-free loan from the Company. At December 31, 1979, the amount of the loan included in accounts receivable was $4,826,000.

8. INCOME TAXES

At December 31, 1979 certain subsidiaries of the Company had estimated loss carry forwards of approximately $8,711,000, which have not been recognized in the accounts. Investment tax credits of $26,411,000 were also available.

9. OIL AND GAS

The Company conducts oil and gas programs in which certain other parties have earned an interest. At December 31, 1979 the Company's interest was 67% in the Elmworth/Wapiti properties and 64% in other properties. Net expenditures to date by the Company on these programs are reflected on the balance sheet in the amount of $121,455,000.

Other companies are committed to contribute $32,000,000 to these programs.

10. CONSOLIDATED DIVISIONAL REVENUES

Revenues from the main divisions of the business are set out on page 37 in the table of "Consolidated Divisional Results".

11. REMUNERATION OF DIRECTORS AND SENIOR OFFICERS

The aggregate direct remuneration paid or payable by the Company and its consolidated subsidiaries to directors and senior officers amounted to $1,725,000.

12. UNUSUAL ITEMS

(a) During 1979 Noranda's associated company Kerr Addison Mines Limited (Kerr Addison) wrote down the investment in its Agnew Lake uranium mine to reflect the decision to curtail operations and ultimately close the mine. In addition, Kerr Addison had unusual gains on sales of mining properties, marketable securities and of an interest in a gas and oil joint venture. Noranda's share of these items, net of tax is:

	(in thousands)
Share of Agnew Lake write down	$(24,528)
Share of gains on sales	8,842
Total	$(15,686)

(b) During 1978 the unusual items consisted of:

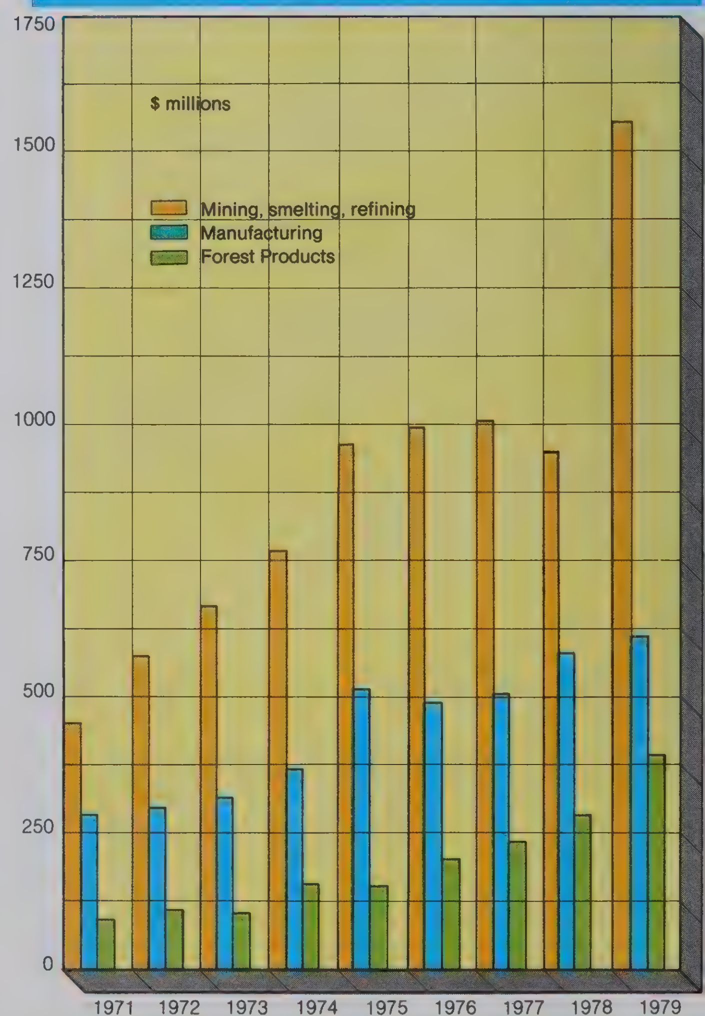
Gain on disposal of sawmills	10,684
Aluminum Plant shutdown — abnormal costs	(9,783)
Total	901

13. SUBSEQUENT EVENTS

The Company made an offer on January 14, 1980 to purchase all the 3,013,890 outstanding Class A shares and all of the 3,000,000 outstanding Class B shares of Maclaren Power & Paper Company. The offer provided Maclaren's shareholders with the option of receiving $40 cash per share or 11 common shares of Noranda for each six shares of Maclaren.

The original offer expired on February 4, 1980; 97% of the holders of both classes of shares have accepted the offer resulting in the issue of more than 10,400,000 shares of the Company. The offer has been extended to February 22.

NET ASSETS EMPLOYED BY DIVISION



Consolidated Divisional Results

FOR THE YEARS ENDED DECEMBER 31

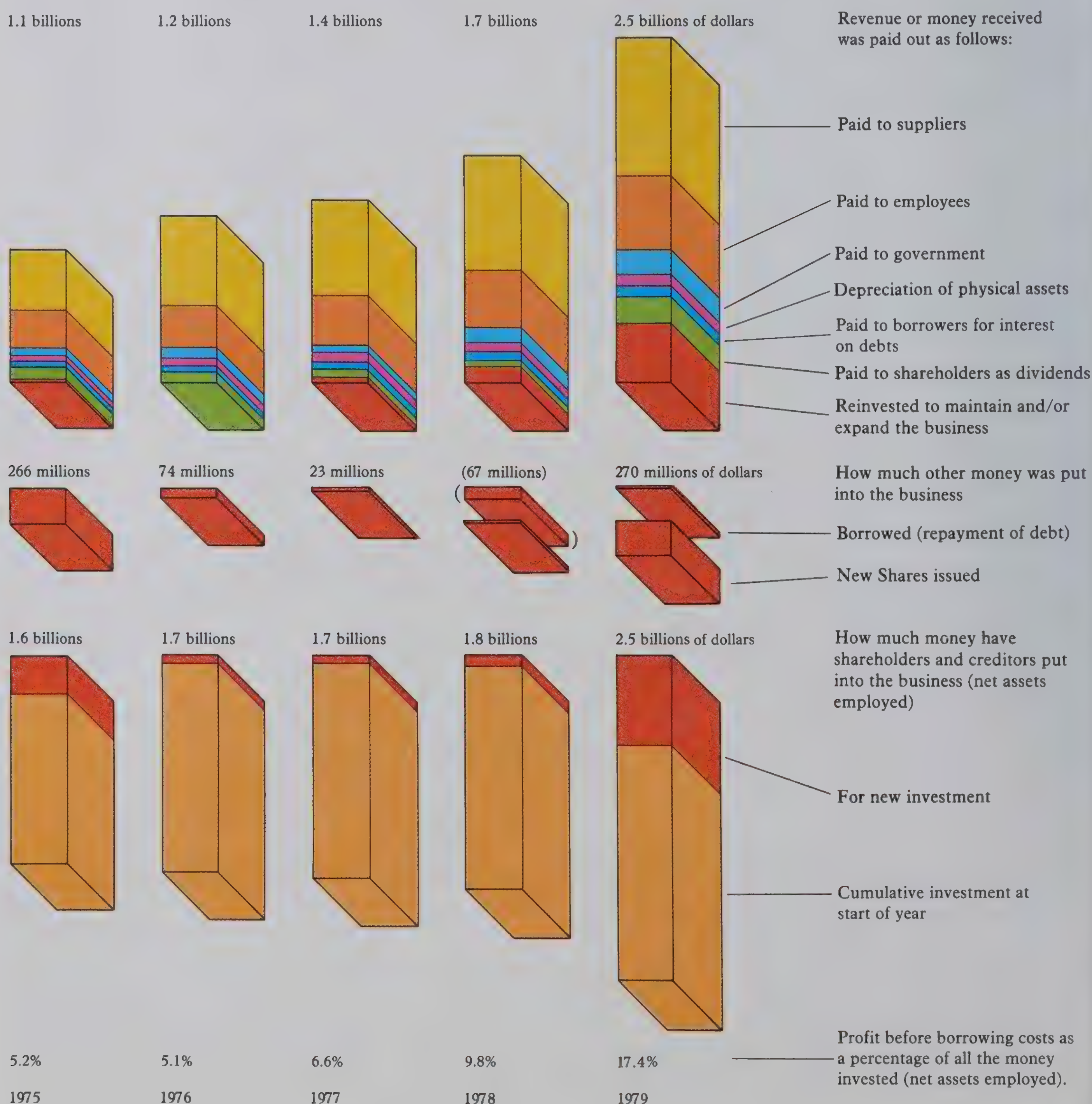
	1979	1978
	(in thousands)	
Revenue from metals, products and custom tolls		
Copper mining, smelting and refining operations (1)	**$ 489,741**	$ 359,006
Other mining and metallurgical operations (2)	**990,807**	501,319
Total mining and metallurgical operations	**1,480,548**	860,325
Manufacturing operations (2)	**1,155,611**	801,275
Forest products operations (2)	**800,540**	707,384
Gross revenue	**3,436,699**	2,368,984
Less: sales between divisions	**170,000**	110,000
sales by associated companies (2)	**791,558**	567,890
Revenue as reported	**$2,475,141**	$1,691,094
Earnings		
Copper mining, smelting and refining operations	**$ 176,472**	$ 52,180
Other mining and metallurgical operations	**150,543**(5)	53,587
Earnings from mining investments	**7,580**	1,625
Gross mining and metallurgical earnings	**334,595**	107,392
Less: exploration written off	**28,707**	13,348
Net mining and metallurgical earnings	**305,888**	94,044
Manufacturing operations and investments	**68,089**	22,517(3)
Forest products operations	**63,933**	61,681(4)
Earnings before borrowing cost	**437,910**	178,242
Less: cost of borrowing (net of tax)	**43,401**	43,068
Net earnings	**$ 394,509**	$ 135,174
Return on net assets (6)		
Net mining and metallurgical earnings	**20.0%**	9.8%
Manufacturing operations	**11.1%**	3.9%
Forest products operations	**16.6%**	22.0%
Earnings before borrowing cost	**17.2%**	9.8%

1. Consists of operations of the Horne, Geco, Babine, Mines Gaspé and C.C.R. Divisions.
2. Gross revenues and earnings include Noranda's share of the revenues and earnings of associated companies accounted for on an equity basis.

   These gross revenues include $241,310,000 from mining and metallurgical operations, $343,123,000 from forest operations and $207,125,000 from Manufacturing operations in 1979 ($153,693,000, $292,074,000 and $122,123,000 respectively in 1978).
3. Includes abnormal costs of $9,783,000 from the aluminum plant shutdown.
4. Includes $10,684,000 gain on sale of sawmills.
5. Includes $15,686,000 net loss on unusual items.
6. Earnings before borrowing cost expressed as a percentage of net assets employed (operating working capital, fixed assets at cost less accumulated depreciation, investments and other assets at book value).

Noranda's Financial Statements
ANOTHER PERSPECTIVE

Noranda's annual revenue, representing the total value of all goods and services generated by the group each year suggests by its size a high level of business activity. To aid in better understanding the impact of this activity on our economy as a whole, it may be useful to reflect on what happened to this revenue. Some 75% or so of the total was paid out to suppliers and employees each year to reimburse them for materials and services rendered. Since one can assume that the suppliers in turn pay out a large portion of their revenue to their sup-



pliers and employees, the benefit from the kind of activity carried on by Noranda in terms of employment generation becomes more evident.

From the point of view of governments as well, although on the surface sharing no more than equally with creditors and shareholders in the net activity of the business, there is a significant indirect benefit. For it can be safely estimated that some 40% of Noranda's total revenue finds its way into government hands through taxes paid by Noranda's employees, suppliers, creditors and shareholders in addition to the amounts paid directly as profit taxes. This estimate is based on the fact that government spending is known to be in the order of 40% of our economy's Gross National Product.

It can be noted from the chart on the right that a fairly insignificant addition was made to the capital base supporting Noranda's activity in all but the latest year — far less than one might reasonably expect to be necessary to maintain productive capacity given the level of inflation we have experienced. The improvement in net cash flow available in 1979 to reinvest in the business was obviously essential to maintain the viability of Noranda's productive base.

The improvement in earnings and cash flow in 1979 as well as supporting a regeneration of facilities allowed an improved payout to shareholders in the form of dividends — providing an average 5% return on their equity investment over the past five years.

The return on total net assets employed by Noranda improved from an average of less than 7% over the past four years to a more reasonable, 17.2% in 1979. The average for the five years 1975 to 1979 is 9.6%. Considering the cyclical nature of the industries Noranda operates in, the long lead times on new investment, and the perceptibly higher average risks involved in its businesses, the trend to a higher return on capital is both welcome and needed. If our country is to grow and prosper it is to be hoped that this trend can be maintained.

Five year Financial Summary
($ in millions)

	1975	1976	1977	1978	**1979**
Earnings —					
Revenue	1,159.3	1,234.8	1,395.8	1,691.1	**2,484.7**
Expense — excluding interest	1,046.5	1,118.1	1,250.3	1,426.0	**1,810.8**
Interest expense	45.3	61.7	71.9	64.8	**65.3**
Income taxes	41.5	25.1	22.7	90.5	**227.0**
Minority interest in profits of subsidiaries	10.1	10.1	12.6	24.8	**57.2**
Earnings of Noranda and subsidiaries	15.9	19.8	38.3	85.0	**324.4**
Share of after-tax profits in associated companies	34.6	26.9	33.5	49.3	**70.1**
Earnings	50.5	46.7	71.8	135.2	**394.5**
Financial Position —					
Capital employed —					
Working capital	188.0	197.5	167.3	281.6	**687.4**
Investments and advances	372.2	361.9	387.8	410.0	**406.1**
Fixed assets — net	805.5	855.5	898.0	958.8	**1,236.0**
Other assets	104.6	118.5	115.8	123.3	**189.3**
	1,470.3	1,533.4	1,568.9	1,773.7	**2,518.8**
Capital sources —					
Shareholders' equity	696.4	715.3	758.7	884.4	**1,463.2**
Long-term debt	533.1	603.4	588.9	604.1	**602.5**
Minority interest in subsidiaries	114.4	120.3	128.2	150.9	**194.0**
Other	126.4	94.4	93.1	134.3	**259.1**
	1,470.3	1,533.4	1,568.9	1,773.7	**2,518.8**
Changes in Financial Position —					
Sources —					
From operations	126.9	83.9	145.9	218.3	**605.9**
Long-term financing (net)	139.3	70.3	(10.1)	15.2	**72.3**
Other (net)	1.0	8.8	(3.1)	8.3	**147.0**
	267.2	163.0	132.7	241.8	**825.2**
Application —					
Dividends	47.2	28.3	28.3	30.7	**70.8**
Capital expenditure — Fixed assets	158.2	115.6	119.6	115.1	**284.9**
Investments and advances (net)	31.0	(21.9)	7.3	(2.1)	**(2.0)**
Other, including acquisitions	25.7	31.6	7.6	(16.1)	**65.7**
Increase (decrease) in working capital	5.1	9.4	(30.1)	114.2	**405.8**
	267.2	163.0	132.7	241.8	**825.2**
*** Share data —**					
Per share —					
Earnings	0.71	0.66	1.01	1.91	**$4.70**
Dividends	0.67	0.40	0.40	0.43	**$0.85**
Market price range					
High	13.25	13.25	11.46	13.00	**$22.83**
Low	9.08	8.79	6.54	6.88	**$12.13**
Shares outstanding (000)	73,354	73,392	73,394	75,548	**101,536**

* Previous years data adjusted for the 3 for 1 split in August, 1979

DOMESTIC OPERATING INTERESTS
(December 31,1979)

MINING AND PETROLEUM

Geco Division, Manitouwadge, Ont.	copper-zinc-silver
Mines Gaspé, Murdochville, Que.	copper
Babine Division, Granisle, B.C.	copper-gold
Boss Mountain Division, Hendrix Lake, B.C.	molybdenum
Central Canada Potash, Colonsay, Sask.	potash
Chadbourne Mine, Noranda, Que	gold
Mattagami Division, Matagami, Que.	zinc-copper-silver
Heath Steele, Newcastle, N.B.	
Little River Joint Venture	copper-zinc-lead-silver
Alberta Sulphate, Horseshoe Lake, Alta.	sodium sulphate
Brenda Mines, Peachland, B.C.	copper-molybdenum
Brunswick Mining & Smelting, Bathurst, N.B.	zinc-lead-copper-silver
Canadian Hunter, Calgary, Alta.	petroleum
Kerr Addison Mines, Virginiatown, Ont.	gold
Agnew Lake Mines, Espanola, Ont.	uranium
Mattabi Mines, Ignace, Ont.	zinc-copper-silver
Pamour Porcupine Mines, Pamour, Ont.	gold
Schumacher Division, Schumacher, Ont.	copper-gold
Placer Development, Vancouver, B.C.	
Craigmont Mines, Merritt, B.C.	copper
Endako Mine, Fraser Lake, B.C.	molybdenum
Gilbraltar Mines, McLeese Lake, B.C.	copper
Placer CEGO Petroleum Calgary, Alta.	petroleum

FOREST PRODUCTS

British Columbia Forest Products, Vancouver, B.C.	
Mills: Boston Bar, Cowichan, Crofton, Delta, Hammond, Mackenzie, Tilbury and Victoria, B.C.	lumber, pulp, newsprint, plywood and shingles
Fraser Inc., Edmundston, N.B.	
Mills: Atholville, Edmundston, Kedgwick and Plaster Rock, N.B.	boxboard, lumber and pulp
Northwood Pulp and Timber, Prince George, B.C.	
Mills: Houston, Prince George, Shelley and Upper Fraser, B.C., and Chatham, N.B.	lumber, pulp and waferboard
B.C. Chemicals, Prince George, B.C.	chlorate and tall oil

METALLURGICAL

Horne Division, Noranda, Que.	copper smelter
Division Mines Gaspé, Murdochville, Que.	copper smelter
Division CCR, Montreal East, Que.	copper refiner
Belledune Fertilizer, Belledune, N.B.	diammonium phosphate
Brunswick Mining & Smelting, Belledune, N.B.	lead smelter
Canadian Electrolytic Zinc, Valleyfield, Que.	zinc reduction
Federated Genco, Scarborough, Ont.	metal-alloys
Plants: Burlington & Scarborough, Ont. and Lachine, Que.	

MANUFACTURING

Canada Wire and Cable, Toronto, Ont.	
Plants: Toronto, Fergus and Orangeville, Ont. Montreal East, Que., Winnipeg, Man., Weyburn, Sask., New Westminster, B.C.	copper rod, wire and cable
Industrial Wire & Cable Division, Toronto,	
Plants: Quebec, Que., Toronto	
Canstar Communications Division, Toronto	fibre optics
Canwirco Inc., Toronto	magnet wire
Plants: Simcoe & Belleville, Ont. Montreal, Que.	
Radionics, Montreal, Que.	diagnostic medical instruments
Canplas Industries, Barrie, Ont.	plastic moulding
Plants: Barrie, Ont., and New Westminster, B.C.	
Grandview Industries, (Rexdale) Toronto	
Plants: Rexdale, Brampton and Mississauga, Ont., Montreal, Que., Weyburn, Sask., Langley, B.C.	plastic moulding and extrusion
Noranda Metal Industries, Montreal East, Que.	
Plants: Montreal East, Que., Fergus and Arnprior, Ont., New Westminster, B.C.	copper sheet, strip, tube and alloys
Norcast Division, Toronto	mill liners, grinding media
Plants: Mont Joli (2), Que. and Moncton, N.B.	and secondary metal
Wire Rope Industries, Montreal, Que.	steel wire rope slings
Plants: Pointe Claire, Que., and Vancouver, B.C.	and strands
Gourock Division, Montreal, Que., and Halifax, N.S.	sporting and fishing nets

INTERNATIONAL OPERATING INTERESTS
(December 31,1979)

Bridon American, Wilkes Barre and Exeter, Pa., U.S.A.	hi-carbon brush wire and steel wire rope
British Columbia Forest Products	
Blandin Paper Co., Grand Rapids, Minn., U.S.A.	paper and waferboard
Canada Wire and Cable (International)	wire and cable and other manufactured products
Alambres Dominicanos, Dominican Republic	
Cabcan, Iran	
Electro Magnet Wire Pty. Ltd., Australia	
Fadaltec, Colombia	
Iconel, Venezuela	
Industrias Conductores Monterrey, Mexico	
Nigerchin Electrical Development Co., Nigeria	
Termocanada Conductores Electricos, Brazil	
Tolley Holdings, New Zealand	
Tycan, Australia, Ply. Ltd., Australia	
Tyree Canada Wire, Australia	
Empresa Fluorspar, Mexico	fluorspar
Fraser Inc.,	
Fraser Paper, Madawaska, Maine, U.S.A.	paper
Kerr Addison Mines	
Mogul of Ireland, Republic of Ireland	zinc-lead
Noranda Aluminum,	aluminum reduction
New Madrid, Mo., U.S.A.	and wire cable
Norandal, Huntingdon, Tenn., U.S.A.	aluminum sheet and foil
Norandex, Cleveland, Ohio, U.S.A.	aluminum building products
Friguia, Republic of Guinea	alumina
Noranda Metal Industries	
French Tube Division, Newtown, Conn., U.S.A.	specialty tube
Placer Development	
Marcopper Mining, Philippines	copper
McDermitt Mine, Nevada, U.S.A.	mercury
Fox Manufacturing, Australia	industrial equipment and forest products
Northern Cattle, Australia	cattle
Tara Exploration and Development	
Tara Mines, Republic of Ireland	zinc-lead

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